



# THE UNIVERSITY *of* EDINBURGH

This thesis has been submitted in fulfilment of the requirements for a postgraduate degree (e.g. PhD, MPhil, DClinPsychol) at the University of Edinburgh. Please note the following terms and conditions of use:

This work is protected by copyright and other intellectual property rights, which are retained by the thesis author, unless otherwise stated.

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author.

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.



Young Children's Perceptions of  
Environmental Sustainability: A Maltese  
Perspective

Jane Spiteri

Doctor of Philosophy  
The University of Edinburgh  
2015



**AUTHOR'S DECLARATION**

I declare that:

1. This thesis has been composed by myself;
2. That it is my own work; and
3. That it has not been submitted for any other degree or professional qualification.

Jane Spiteri

Date

## ABSTRACT

This thesis is located in the emerging field of early childhood education for sustainability and has particular focus on Malta. It sought to gather insights into young children's perceptions of environmental sustainability, and the influences that shaped these perceptions, particularly in the context of the family and the school. Twelve Maltese children, aged between 3 and 7 years, ten parents, five teachers and a head teacher participated in this study, which was conducted in two Maltese State schools and one household.

Designed within interpretive methodology, this study adopted a qualitative multiple case study approach. It was guided by cognitive theory, socio-cultural theory, bio-ecological theory of human development, the "new sociology of childhood" and related policy initiatives like the United Nations Convention on the Rights of the Child, and theories of inter-generational influence. Data were generated through observations; conversational interviews with children; their interpretations of photographs; and their drawings and interpretation of them. Semi-structured interviews with parents, teachers and head teacher, a researcher's journal and document analysis were used to triangulate the data. Manual data analysis produced a plethora of rich and in-depth data.

The main findings reveal three themes which reveal children's perceptions of the environment; their perceptions of environmental sustainability; and the contextual influences upon these perceptions. Children's perceptions of environmental sustainability started at an early age; were influenced by context; and were socially and culturally constructed. Children were able to discuss issues related to environmental sustainability at a basic level by drawing on personal experience. Overall, the study indicates that young children possess some knowledge of environmental sustainability and can talk about it. This thesis concludes by considering the implications of the study for educators, researchers, curriculum and policy-makers; and by outlining several avenues for future research.

## ACKNOWLEDGEMENTS

The completion of this thesis was a very difficult journey. Initially it was full of disappointments but along the way I met people who inspired and motivated me. Gratitude goes out to everyone who has been part of this journey. Since the early negative beginnings of my research process many people have listened, some have heard. I would like to thank all of those who have supported, inspired, encouraged and guided me in one way or another throughout this study.

I would like to thank my supervisors Prof. Peter Higgins, Dr. Robbie Nicol and Dr. Hamish Ross for their enormous support and their constructive guidance, for supporting me throughout this learning process, for their critical feedback, for their patience and for being a constant source of support, inspiration and motivation, even when I wanted to give up.

I would also like to thank Prof. Paul Pace from the University of Malta for helping me embark and stay on this journey even during the most difficult of times.

I would like to thank my progression board examiners, Prof. Morwenna Griffiths and Dr. Simon Beames, and the chair, Dr. Ken McCulloch; and my viva examiners, Dr. Gale MacLeod and Dr. Rehema White, and the chair, Dr. Charles Anderson.

Thanks to the Maltese Government for offering me an MGSS scholarship in 2010 to pursue this study.

Thanks to all the educators, parents and children who participated in this study, for finding my study interesting, for letting me enter into their lives and for sharing their views and stories with me. Without them this study would not have been possible.

Gratitude goes to all the staff at the University of Edinburgh for their support and encouragement. I would like to thank my colleagues at university for making me feel welcome and for making “studying” a bit easier.

My sincere thanks go to my family, especially Gino and Giulio, for permitting me to undertake this study and later allowing me to return to being a student in order to complete it. Thanks Gino for putting up with my obsessions, moods and selfishness, for believing in me and for being there for me through the worst and the best of this journey. Thanks Giulio for proofreading the children’s letters of information and consent forms; you helped me see things from the perspective of a child. You both have been an enormous support, endless source of strength, inspiration, dedication and motivation throughout this journey. Without you in my life, I could not have survived this journey. This is our Ph.D., we did it together!

Thank you everyone!

## TABLE OF CONTENTS

AUTHOR’S DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	xiii
LIST OF FIGURES	xv
ACRONYMS AND ABBREVIATIONS	xvii
CHAPTER 1: SETTING THE SCENE	19
1.1 Building a case for this research	21
1.2 Identifying the gaps	24
1.3 Locating my study in the Maltese context	26
1.4 The Maltese education system	33
1.5 Early childhood education in Malta	38
1.6 Research questions	45
1.7 Research significance	45
1.8 Organisation of the study	51
CHAPTER 2: EDUCATION AND SUSTAINABILITY	55
2.1 Nature and the environment	55
2.2 Human-environment relationship	56
2.3 Sustainable development	63
2.4 Environmental sustainability	71



2.5	Environmental worldviews, values and attitudes	76
2.6	Pro-environmental behaviour	84
2.7	Knowledge-action connection	86
2.8	Education and sustainability: A historical perspective	91
2.9	Education for sustainable development	99
2.10	Early childhood education and education for sustainable development: Synthesising the fields	114
2.11	Conclusion	122
CHAPTER 3: YOUNG CHILDREN AND ENVIRONMENTAL SUSTAINABILITY		123
3.1	Dominance of maturational theories in early childhood education	124
3.2	Challenges to maturational approaches	125
3.3	The child in society: A socio-cultural perspective	127
3.4	The significance of context: A bio-ecological perspective	134
3.5	Inter-generational influences: environmental learning in the family	140
3.6	Conceptualising children	145
3.7	The new sociology of childhood and research	149
3.8	Listening to children: Young children's perceptions of the environment and sustainability in research	152
3.9	Conclusion	160

CHAPTER 4: METHODOLOGY AND METHODS	169
4.1 Rationale for the research methodology	170
4.2 Qualitative research	172
4.3 Multiple case study	174
4.4 Myself as a researcher	180
4.5 The pilot study	188
4.6 The main study	197
4.7 Data collection methods	202
4.8 Informed consent	215
4.9 Anonymity and confidentiality	217
4.10 Data analysis and reporting	218
4.11 Trustworthiness as a measure of rigour	226
4.12 Conclusion	230
CHAPTER 5: MEETING THE CHILDREN	231
5.1 Context of the study: St. Nicholas Primary	232
5.2 The head teacher	233
5.3 Case studies in Kindergarten 1	239
5.3.1 The teacher	239
5.3.2 Sarah's case study	240
5.3.3 Dalton's case study	246
5.3.4 Jazlyn's case study	250
5.4 Case studies in Kindergarten 2	253
5.4.1 The teacher	253

5.4.2	Denzil's case study	254
5.4.3	Ayida's case study	259
5.4.4	Thea's case study	263
5.5	Case study in Year 1	268
5.5.1	The teacher	268
5.5.2	Amie's case study	269
5.6	Case studies in Year 2	273
5.6.1	The teacher	273
5.6.2	Ylenia's case study	274
5.6.3	John's case study	279
5.6.4	Jaylee's case study	284
5.6.5	Liam's case study	287
5.7	Context of the study: St. Mary Primary	290
5.8	Case study in Year 2	292
5.8.1	The teacher	292
5.8.2	Francesco's case study	292
5.9	Conclusion	302
CHAPTER 6: DISCUSSION		303
6.1	What perceptions of environmental sustainability do young Maltese children hold?	304
6.1.1	Children's perceptions of the environment	304
6.1.2	Children's perceptions of environmental sustainability	315

6.2	What are the contextual influences upon children's perceptions of environmental sustainability?	332
6.2.1	Contextual influences upon children's perceptions of environmental sustainability	333
6.3	Conclusion	365
CHAPTER 7: CONCLUDING COMMENTS		367
7.1	A critical reflection on the findings	367
7.2	A critical reflection on the research process	375
7.3	Contributions	386
7.4	Implications	390
7.5	Recommendations for Future Research	395
7.6	A final note	399
REFERENCES		403
APPENDICES		443
Appendix A:	Educational reforms in Malta	444
Appendix B:	Pro-environmental models	450
Appendix 1:	Observation schedule	453
Appendix 2:	Pilot study - Information letter for children	454
Appendix 3:	Pilot study - Information letter for co-ordinators/heads of school, play workers/teachers, and parents	456
Appendix 4:	Pilot study - Child's consent form	460

Appendix 5:	Pilot study - Co-ordinator/head teacher and teachers'/play workers' consent form	462
Appendix 6:	Pilot study - Parent/Caregiver's consent form	466
Appendix 7:	Children's assent and the research explained in pictures	472
Appendix 8:	Smiley faces	478
Appendix 9:	Question mark and stop cards	479
Appendix 10:	Pilot study - Children's conversational interviews guides	481
Appendix 11:	Pilot study - Interview guide for co-ordinators/head teachers, and play workers/teachers	484
Appendix 12:	Pilot study - Interview guide for parents	487
Appendix 13:	Pilot Study - Photographs for photograph interpretation session	490
Appendix 14:	Main study - Information letters for head teachers, teachers and parents	494
Appendix 15:	Main study - Parent/Caregiver's consent form	498
Appendix 16:	Main study - Consent form for head teacher and teachers	503
Appendix 17:	Main study - Information letter for children	507
Appendix 18:	Main study - Child's consent form	511
Appendix 19:	Main study – Children's conversational interviews	513
Appendix 20:	Main study – Interview guide for head teacher	515
Appendix 21:	Main study – Interview guide for teachers	517
Appendix 22:	Main study – Interview guide for parents	519
Appendix 23:	Transcript letter to participants	521
Appendix 24:	Ganni, the puppet	523

Appendix 25:	Main study - Photographs used during photograph interpretation session	524
Appendix 26:	Data sheet	528
Appendix 27:	Case study data analysis worksheet – Children’s data	529
Appendix 28:	Case study data analysis worksheet – Parents’ data	533
Appendix 29:	Case study data analysis worksheet – Head teacher’s and teachers’ data	536

## LIST OF TABLES

Table 1.1:	The Maltese education system	34
Table 1.2:	Non-compulsory and compulsory early childhood education in Malta	39
Table 2.1:	Four major thrusts and seven strategies of ESD	100
Table 4.1:	The case study schools in the pilot	190
Table 4.2:	The participating schools and household	198
Table 4.3:	The participants	201
Table 4.4:	The seven phases in qualitative analysis	219
Table 4.5:	Log of data gathering activities	221
Table 4.6:	Final list of themes created from children's, parents' and educators' data	225
Table 5.1:	Sarah's demography	240
Table 5.2:	Dalton's demography	246
Table 5.3:	Jazlyn's demography	250
Table 5.4:	Denzil's demography	254
Table 5.5:	Ayida's demography	259
Table 5.6:	Thea's demography	263
Table 5.7:	Amie's demography	269
Table 5.8:	Ylenia's demography	274
Table 5.9:	John's demography	279
Table 5.10:	Jaylee's demography	284
Table 5.11:	Liam's demography	287
Table 5.12:	Francesco's demography	292

Table A:	An example of PEB research at individual level	450
Table B:	A summary of behaviour change theories and models, their main characteristics	451



## LIST OF FIGURES

Figure 2.1:	The four dimensions of sustainable development	70
Figure 3.1:	The zone of proximal development	131
Figure 3.2:	Scaffolded interaction	133
Figure 3.3:	Bronfenbrenner's bio-ecological model of human development	135
Figure 5.1:	<i>EkoSkola</i> award on display in a school corridor	234
Figure 5.2:	<i>EkoSkola</i> and Nature Trust (Malta) awards on display in a school corridor	234
Figure 5.3:	Pro-environmental activities at the school entrance	235
Figure 5.4:	Recycling boxes in one of the school's corridors, which were made out of used boxes and painted by children	235
Figure 5.5:	A room at the back of the school building used for recycling material, as part of the school's recycling competition	236
Figure 5.6:	A reminder on the switches for users to turn off the lights when leaving the room	236
Figure 5.7:	Signs on toilet doors as part of the school's participation in the Catch the Drop campaign, aimed at teaching water conservation practices	237
Figure 5.8:	Signs on toilet doors as part of the school's participation in the Catch the Drop campaign, aimed at teaching water conservation practices	237
Figure 5.9:	Sarah's drawing of the environment	243
Figure 5.10:	Dalton's drawing of the environment	248

Figure 5.11: Jazlyn’s drawing of the environment	252
Figure 5.12: Denzil’s drawing of the environment	257
Figure 5.13: Ayida’s drawing of the environment	261
Figure 5.14: Thea’s drawing of the environment	265
Figure 5.15: Amie’s drawing of the environment	271
Figure 5.16: Ylenia’s drawing of the environment	277
Figure 5.17: John’s drawing of the environment	280
Figure 5.18: Jaylee’s drawing of the environment	285
Figure 5.19: Francesco’s idea of the ideal environment	295
Figure 5.20: The current state of the environment according to Francesco	296
Figure 5.21: A photograph of two Lego “orcs”. By Francesco	298
Figure 5.22: Air pollution caused by power stations	299
Figure 5.23: A war scene by Francesco	301

## ACRONYMS AND ABBREVIATIONS

I use a number of terms in this thesis that I define in this section.

CO<sub>2</sub> – Carbon Dioxide

DAP –Developmentally-Appropriate Practice

DESD – Decade for Education for Sustainable Development

DSP - Dominant Social Paradigm

ECCE- Early Childhood Education and Care

EE – Environmental Education

EESD - Environmental Education for Sustainability

ECEfS – Early Childhood Education for Sustainability

*EkoSkola* – International Eco-Schools programme

EfS – Education for Sustainability

ESD – Education for Sustainable Development

EU – European Union

EURYDICE - European Commission Directorate-General for Education and Culture

EVW - Ecological World View

F - Female

IIS - International Implementation Scheme

IPCC – Intergovernmental Panel on Climate Change

IUCN – International Union for Conservation of Nature and Natural Resources

M - Male

MEPA – Malta Environmental and Planning Authority

MRA - Malta Resources Authority

NCF – National Curriculum Framework

NEP – New Environmental Paradigm

NGO – Non-governmental Organization

NMC - National Minimum Curriculum (Malta)

NSO – National Statistics Office (Malta)

OECD – Organisation for Economic Co-operation and Development

OMEP – World Organisation for Early Childhood Education

SD – Sustainable Development

UN – United Nations

UNCRC – United Nations Convention on the Rights of the Child

UNCED - United Nations Conference on Environment and Development

UNESCO – United Nations Educational, Scientific, and Cultural Organization

UNEP – United Nations Environment Programme

UNESCO-UNEP - United Nations Educational, Scientific, and Cultural Organization-  
United Nations Environment Programme

UNFCCC – United Nations Framework Convention on Climate Change

UNGA - United Nations General Assembly

UNICEF – United Nations International Children’s Emergency Fund

WCECCE - World Conference on Early Childhood Care and Education

WCED – World Commission on Environment and Development

WHO – World Health Organization

WSSD – World Summit on Sustainable Development

NSC – New Sociology of Childhood

## CHAPTER 1: SETTING THE SCENE

There are several motivating factors which prompted the present research which were both personal and academic. The first important factor in why my study was conducted lies in my personal experience in the outdoors from an early age. I grew up in a rural area in the South of Malta and the countryside was my play station throughout my childhood. I believe this has sparked my initial interest in the local environment and environmental sustainability, but not only.

The second important factor was becoming a mother, coupled with my involvement in local environmental groups and my awareness of local and global environmental issues, which encouraged me to care more for the environment. I remember one incident in particular in the spring of 2010, when my son, Giulio, was 4 years old. We were walking in the countryside and he was talking excitedly to me about the beauty of the scenery around us. Suddenly he asked me, “Mummy, what have we done to this Earth? We are killing it, aren’t we?” I was speechless! I wondered where this question came from and why did he say “we”? Was he including himself in all this? What could a 4-year-old boy possibly know about the environment and sustainability? Where did this idea come from? Was this the result of his upbringing? How and where did he construct this idea? Wasn’t he too young to understand? Did I really know anything about young children’s thought processes and their ways of learning? ... More questions kept coming into my head ...

Ultimately, I realised that as a young boy, Giulio could offer us a unique and honest viewpoint on the world around him. This powerful experience left me with a strong sense of admiration for young children’s capacity to learn, absorb cues from their

surroundings and to develop as individuals, and inspired me to pursue the present research.

The third important factor was my professional experience as a teacher in schools in Malta, which is my home country. During my undergraduate studies at the University of Malta I focused on the education of young children. Before I embarked on my research journey, I spent 12 years as a teacher in different schools in Malta. Despite the range of schools in which I worked there were some consistencies which were important for my study.

The first consistency was the realisation that nowadays children spend less time outside in nature and more time in front of a screen and indoors. This is not to say that all children in Malta lack experience in the natural environment but from my professional experience this seems to be current trend in Malta.

The second consistency was that at school children spent most of their time in the classroom. Over the course of my teaching career I became aware that learning about the environment happened via textbooks and children lacked real-life experiences in nature. Moreover, some educators I have met commented that they experienced difficulties in including experiences about certain environmental issues in the classroom.

My personal reflection upon these issues generated more questions and so I turned to literature for an answer. As a result of this process, some of my questions were partially answered while new ones emerged. The most significant of these was that my questions regarding young children's (aged 3 - 7) perceptions of environmental sustainability in Malta and the contextual influences upon these

perceptions remained unanswered. This led me to apply for a scholarship from the Government of Malta, which I was awarded in 2010 to conduct the present research.

### **1.1 Building a Case for my Study**

In recent decades, environmental degradation has been the subject of much research and international debates, which has resulted in increasing recognition of the importance of safe-guarding the environment by the public. The current state of the environment calls for urgent action, particularly for the benefit of children who will inherit our environmental, economic, and social problems in the future. For the purpose of this thesis, a child is considered to be any person under age 18 (United Nations [UN], 1989).

Education is believed to have an important role to play in contributing towards a sustainable future (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2013). Although the issue of sustainability will be discussed in Chapter 2, one definition of sustainability emphasised:

the linkages and interdependencies of the social, political, environmental and economic dimensions of human capabilities. It is a view that acknowledges relationships between humans and between humans and other species, is underpinned by critique of the ways in which humans use and share resources, and recognises intergenerational equity issues. (Davis, 2010, p. 2)

Sustainability, therefore, is concerned with how we live now and in the future.

Environmental education (EE) has been popular for over four decades. However, it has been insufficient for teaching children about the current broader issues of sustainable living as its focus is mainly on teaching about environmental issues. Elliott and Davis (2009) argued that EE has had limited impact on changing people's behaviours towards sustainability. Currently, EE is seen as a subcategory of education for sustainable development (ESD). Davis (2010) observed that ESD acknowledges education as key in changing how people live and think about

sustainability, while focusing on the interactions between people and how these relationships affect the environment and its functioning.

Early childhood is characterised by the greatest and most significant time of human development and is regarded as the foundation on which the rest of life is built (Organization for Economic Co-operation and Development [OECD], 2006). Scientific research (National Scientific Council on the Developing Child, 2007) has indicated that, “Stimulating early experiences lay the foundation for later learning” and these are “essential (though not sufficient) for the development of optimised brain architecture. Stated simply, stimulating early experiences must be followed by more sophisticated and diverse experiences later in life” (p. 4). Similarly, it has been reported (Center on the Developing Child at Harvard University, 2010; Pramling Samuelsson & Kaga, 2008; UNESCO, 2014) that values, attitudes, behaviours and skills acquired in early childhood may have a lasting impact in later life.

The Sustainable Development Solution Network (SDSN) (2014) observed that early childhood education and care (ECCE) can enhance a child’s capacity to participate effectively in a community, a workplace and society. ECCE is generally considered by researchers (Copple & Bredekamp, 2009; Sollars, Attard, Borg, & Craus, 2006; UNESCO, 2014) as education of young children that occurs between birth and 8 years of age. In this thesis, the term ECCE refers to education of children between 3 and 7 years of age. Researchers (Davis, 2010; Pramling Samuelsson, 2011) also reported that good quality ECCE can reap significant returns later on in life, both for the individual and for the community.

Historically and philosophically, learning in ECCE has been connected with nature-based learning. Since Froebel’s notion of Kindergarten (i.e. children’s



garden), ECCE in the Western world has focused on learning in a natural environment (Duhn, 2012). This concept provided fertile ground for ESD in the early years. In summary:

There is growing recognition among policy-makers that the earliest stage of learning (ECCE) is the foundation of sustainable development. There is also an increased understanding among education experts of the capacity of young children to respond to environmental/sustainability issues and to be agents of change within their families and communities. (UNESCO, 2014, p. 30)

In reality, however, ESD has been implemented in ECCE through a developmentalist approach (Edwards & Cutter-Mackenzie, 2011). Consequently, ESD in ECCE has focused largely on “green” issues or nature education (Elliott & Davis, 2009). For example, in ECCE, nature is used as a resource or a space, where natural items are collected for children to observe, discuss, touch and learn about. While such experiences have learning significance, they are not enough to teach children about the broader sustainability issues that must be addressed.

Although the early years of a person’s life are recognised as a significant period in a person’s life, and for ESD (Pramling Samuelsson & Kaga, 2008; UNESCO, 2008b; UNESCO, 2010; UNESCO, 2014), ECCE has been “slow to respond to environmental and sustainability concerns” (Davis, 2010, p. 26). In recent years, internationally ECCE has slowly begun to shift its focus from environmental and nature education towards ESD for young children. This shift has given rise to a new and emerging field of education known as early childhood education for sustainability (ECEfS) (Pramling Samuelsson & Kaga, 2008). ECEfS has been slow to engage with thinking and practice on sustainability despite uptake of environmental research by other educational sectors. It is an area of educational research that is still under-resourced, under-researched (Davis, 2010, 2013;

UNESCO, 2014), under-evaluated (UNESCO, 2014) and under-theorised (Cutter-Mackenzie & Edwards, 2013). Consequently, in this thesis I argue that undertaking research on ECEfS is necessary to provoke thinking and discussion about how children co-construct their knowledge of environmental sustainability. Specifically, my study explores how young Maltese children perceive environmental sustainability and how their perceptions are influenced, particularly at home and at school.

## **1.2 Identifying the Gaps**

Examination of the ECEfS literature revealed a number of research gaps, which my thesis attempts to fill.

First, there has been a growing need to understand how young children perceive environmental sustainability. Davis (2009) observed that there is limited research on the ways children co-construct knowledge of environmental/sustainability issues and what they feel they can do about them. Davis (2010) and Elliott and Davis (2013) stated that there is scant research on young children's ideas about sustainability topics.

Second, as noted by Sorin and Gordon (2013), there is a lack of knowledge of how children's ideas of environmental sustainability are formed through their interactions with their surroundings. Children are not only part of a family; they are also part of society and they construct their learning in social settings (Corsaro, 2003; Rogoff, 2003), therefore their social settings must be explored to understand the contextual influences on their perceptions of environmental sustainability.

Third, there is a need for research that examines how the family and the school contribute to children's perceptions of environmental sustainability.

UNESCO (2014) considered the role of families and communities to be paramount in

re-orienting ECCE towards ESD because parents are children's first educators, and caregivers and local communities provide the context for children's living and learning. ECEfS has not researched environmental sustainability, particularly in out-of-school or home contexts. As indicated by Davis (2009), research has largely ignored the importance of the family in developing children's sustainability practices, and achieving and maintaining a sustainable lifestyle. To date, research that explores family and learning contexts in relation to the family dynamics in inter-generational environmental learning is scant (Istead & Shapiro, 2014), even in ECEfS (Davis, 2009). In 2006, OECD (2006) observed that research on the role of carers, parents and teachers in children's environmental learning is scarce too. Davis (2010) argued that previous research has predominantly sought young children's ideas about the environment in school settings rather than their explanations about environmental sustainability in school and in out-of-school contexts. Thus, although the importance of the family context for children's learning has long been recognised in education, this has not been fully embraced within the ECEfS field.

Fourth, Pace (2009) and Mifsud (2012) have suggested that there is a growing need to explore the perceptions of environmental sustainability of young children living in Malta. ECEfS in Maltese research is still in its infancy because local environmental and sustainability research in Malta tends to focus on older children and adults. In fact, to date there is only one study on ECEfS in Malta (Gonzalez, 2013) and therefore ECEfS in Malta needs to be explored further.

Fifth, there has been a growing need for further research that uses different theoretical perspectives, commonly associated with ECCE, to design ECEfS research. Davis (2010) and Elliott and Davis (2013) have called for more

methodologically diverse research in ECEfS. Additionally, Mackey & Vaealiki (2011) have called for research that is “cognisant of children’s rights to have a voice and share their perspectives about ECEfS” (p. 83). Cutter-Mackenzie and Edwards (2013) argued that qualitative research has considerable potential to contribute to knowledge in this area, but ECEfS research has not yet explored the potential of theoretically informed research. Specifically, Cutter-MacKenzie and Edwards (2013) argued that ECEfS can benefit from research that explores the possibilities that are enabled by linking theoretical perspectives across ECCE and EE so as to discover more about young children’s learning about sustainability and the environment.

### **1.3 Locating my Study in the Maltese Context**

Social research on ECEfS is largely absent in small islands, particularly in Malta. Therefore, Malta offers a unique opportunity to critically analyse and investigate the issue under study. Malta is particularly interesting because of its geographical size and isolation, ecology, human-environment interactions and colonial history. Using Malta as a case study provides the opportunity to critically examine ECEfS while also covering new ground in areas of study relating to education and broader studies related to ESD and environmental sustainability. In so doing, my study makes a valuable contribution to social research on ECEfS by using Malta as a case study.

The Republic of Malta is a small State<sup>1</sup> which consists of an archipelago of three islands (Malta, Gozo and Comino) making up an area of approximately 316

---

<sup>1</sup> According to Brock and Crossley (2013) the definition of a small state is as an arbitrary concept, however, the most widely accepted contemporary definition is that of a nation, or territory, with a

km<sup>2</sup>. With a population of about 417,432, it has a relatively high population density of around 1321 persons per km<sup>2</sup> (National Statistics Office [NSO], 2014a). Malta's strategic geographical position in the middle of the Mediterranean, between Europe and Africa, has attracted successive colonisers for centuries, including the Phoenicians, Carthaginians, Romans, Aragonese, Normans, Arabs, Byzantines, Knights of St. John, French and British. Malta had its first Maltese governor in 1921 while it was still under British rule. In 1964, Malta obtained self-rule from the British and became a Republic in 1974. Malta is a member of the Commonwealth (Brock & Crossley, 2013). In 2005, it became a member state of the European Union (EU).

Malta's unique and complex colonial history has left some distinguishing marks on contemporary Maltese society. Three decisive influences on contemporary Malta have been identified by Sultana and Baldacchino (1994), including: British traditions, the Roman Catholic Church, and what they termed "the Realm of Lilliput" (p. 14), or Malta's geographical isolation and its tight knit community which have created insularity that tended to smother the individuality of the Maltese people and their sense of adventure from a young age.

### **1.3.1 British traditions.**

Sultana and Baldacchino (1994) explained that the British were interested in Malta for its strategic position, and, on the whole, they tended not to disrupt local culture and customs unless it was absolutely necessary for national interest, and they

---

demographic threshold of less than three million people, however, in the context of education, the Commonwealth adopts a figure of less than 1.5 million people. Malta fits these definitions.

avoided serious disputes with the Roman Catholic Church in Malta. Over the years, the influence of colonialism has had a lasting impact on Maltese society and Government structures, which have continued to promote and enforce a centralised, bureaucratic and highly hierarchical management style as a means to maintain the status quo. People in authority have always been responsible for important decision-making the Maltese tended to believe that authority should not be questioned (Boissevain, 1990; Mifsud, 2012).

Another impact of colonialism on Maltese culture is that the Maltese generally believe that anything that has been created in a foreign country or by foreigners is always better (Boissevain, 1990). One way in which this is manifested is in the impact of the British on the languages spoken in Malta, where even though Maltese is the first language, English is considered as a socio-positional good by most Maltese (Scriha, 1994). Most families (90%) are Maltese-speaking (Mifsud, Milton, Brooks, & Hutchinson, 2000); however, English is predominantly used at the University of Malta (Mayo, 2005). Overall, the British, left an imprint on education, administration, justice and Government; the colonial governor-style of “top-down” administration fitted well with established local traditions of paternalistic authority coming from the Roman Catholic Church.

### **1.3.2 The Roman Catholic Church.**

For centuries, the Roman Catholic Church (thereafter referred to as the Church) in Malta was very powerful and it also had a strong hold on local politicians. It was in the best interest of the Church to withhold knowledge from the public because in so doing it was holding a powerful stance over what people thought and how they behaved, making Maltese society very conservative. It had the traditional

role of developing values in Maltese society. Moral regulations and paternalistic values passed on by the Church stand at the core of Maltese society and play a crucial role in socialising children to maintain the status quo (Visanich, 2009).

Maltese people scored highest in a survey investigating religious affiliation across Europe, with over 98% of the population professing to be Roman Catholic (Central Intelligence Agency [CIA], 2010). The Roman Catholic religion is defined as “the official religion of Malta” by the Maltese Constitution, thus giving Maltese people a specific religious identity. Furthermore, religious education in the Roman Catholic faith in Maltese schools (State, Church and Independent) is stipulated in the Constitution and the Education Act of Malta (Chapter 327 of the Laws of Malta, 1988) and in the agreement between the Holy See and the Republic of Malta (Ministry of Education, 1999). In schools, lessons about the teachings of the Roman Catholic religion, called “Religion lessons”, are compulsory for all children, of all ages, attending Church and most State schools.

Of special interest to my thesis is the role played by the Maltese Church in environmental degradation. In this regard, Pace (2009) argued that the Roman Catholic religion in Malta has, over the years, fostered a steady alienation from environmental concerns, which has led to a narrow and anthropocentric view of the value of the land. This has given rise to an impoverished environment as a result of unsustainable development. The long history of colonialism coupled with the power of the Church, has created a culture of resistance to change and a culture of double standards in Maltese society (Pace, 2007, 2009). Pace (2007, p. 216) called this a culture “incongruencies” where from a young age children learn to “fend-for-yourself”, and often the beliefs of the Maltese do not necessarily relate to their

behaviours. While this philosophy increases personal opportunities it also hinders social cohesion. An example of such incongruencies is the fact that Maltese people manifest pride in their homes, but not in their environment or language. Thus, the mentality that the environment outside their home belongs to their colonisers still persists. Indeed, Maltese people seem to have a problem realising they own the homeland, particularly its environment, which has led to the rapid degradation of the natural environment (Mifsud, 2012). Local environmental researchers (Bezzina & Pace, 2004; Mifsud, 2012; Pace, 2009) too observed that this resistance to change has also been reflected in the Maltese education system, particularly in ESD. Recently, however, the Church in Malta has made a commitment towards supporting sustainability by setting up the Environmental Commission and the Justice and Peace Commission (Pace, 2007).

### **1.3.3 Malta's geo-political context.**

Sustainability has been an important theme in development strategies of small island States (UN, 1994, 2005). Due to its small geographical size, Malta has diverse competing demands for land use, making it more dependent on its limited resources for its development than larger States (Farrugia, 1991; Mayo, Pace, & Zammit, 2008). Since Malta has no natural resources, other than limestone, the sun and sea, it has to rely on the initiative and resourcefulness of its people to build its economy. In Malta, years of colonialism, political covert and overt messages, and ingrained religious and cultural concepts of what makes a good life have created unsustainable lifestyles among Maltese people (Mayo et al., 2008).

The rapid expansion of the building industry in Malta since World War II has destroyed unique areas of natural capital. Over the years, the construction and



quarrying industry, which is responsible for 88% of Malta's solid waste (Mayo et al., 2008) has continued to grow despite their overall negative environmental impacts, resulting in the rapid depletion of limestone (one of the few natural resources in Malta). This sector contributes to 5.3% of the GDP and while in Malta around 35,000 dwellings (23% of the total dwellings in Malta) are vacant, the construction of buildings continues to increase (Malta Environment and Planning Authority [MEPA], 2006) in order to ensure economic growth. Such unsustainable and uncontrolled development has degraded the Maltese environment and has negatively impacted the quality of life of Maltese people.

Transportation is a major cause of environmental issues in Malta. Private car use has increased considerably in recent years and so did traffic issues. Successive Governments have been reluctant to deal with this issue because it generates income to the country's economy. The NSO (2015) reported that the number of licensed cars in Malta continues to increase annually. Between 2013 and 2014 there was an increase of almost 20,000 vehicles in Malta (NSO, 2013, 2015), a huge number considering the geographical size and the population density of Malta.

Power stations are another important environmental issue in Malta. The World Health Organization [WHO] (2009) reported that power stations in Malta contributed significantly to air pollution, and to an increase in asthma prevalence in Malta in recent years; and asthma prevalence in Malta is above the European average. This has also been supported by local medical research (Montfort, Ellul, Montfort, Caurana, & Agius Muscat, 2009), which demonstrated an increase in respiratory diseases among Maltese children between 5 and 8 years of age.

In Malta issues around sustainability are presented in policy documents which use technical data which are difficult for the general public to interpret (Briguglio & Pace, 2004). Mayo et al. (2008) argued that in Malta the concept of sustainability is misunderstood even by people in authority, such as politicians, and the economic dimension of sustainability still draws most attention by the Government, followed by the social dimension, with environmental concerns being given lip-service and sacrificed for economic gains. Indeed, the WHO (2009) reported that the environment is one of the narrowly defined niches in political decision-making in Malta, where, “Local councils often discuss air pollution, and the public and the mass media often address the challenges of waste” (p. xii). Such barriers regarding sustainability have deterred the Maltese from taking action in favour of the environment. This has been supported by local research (Abela, 1993; Briguglio & Pace, 2004; Mayo et al., 2008) which showed that while Maltese people are aware of environmental problems, they lack attitudes, values and skills to adequately develop pro-environmental action. Lately, political decision-making on the environment has not improved the state of the environment in Malta either. Despite the recent change in the country’s political leadership, the Government still lacks a clear vision of what sustainability implies and a strong conviction to please its voters, and policy-makers have to abide by its short-term unsustainable proposals.

Finally, local media can have a major potential for ESD, however, this resource is under-utilised in Malta (Mayo et al., 2008). Pace (2007) argued that local media featured issues concerning sustainability from a sensational and apocalyptic perspective, and they only provide information and raise awareness to the point where it is expected that sustainability skills and values are an automatic and natural

consequence of increased level of awareness. Mayo et al. (2008) listed three reasons for this outcome, including: (1) a lack of trained personnel; (2) the fact that sustainable development issues “don’t sell”; and (3) sustainable development issues usually entail everyday decision-making that is not dramatic or sensational enough to have airing value (p. 242).

#### **1.4 The Maltese Education System**

Tied to Malta’s colonial past is the issue of transferability of educational practices (Mifsud, 2012; Sultana, 1999). Compulsory schooling in Malta for Maltese children, aged 5 and 12 years, started in 1924 under British rule (Act XXII of 1924, in Cassar, 2014). In 1928, compulsory school attendance was raised to 14 years (Cassar, 2014). In 1969, the British decided to let the Maltese choose their own curriculum. Secondary schooling for all became compulsory in 1971 and the Labour Government at the time introduced free primary and secondary education to all Maltese children. Primary State education became co-educational in the early 1970s and kindergartens, which were free for all children, were set up in 1978. In 1976, following pressure from teachers, streaming by ability was introduced in State schools. In 1988 streaming by ability for children aged 3 to 7 years was abolished in order to give children the right to experience a more equitable form of educational provision and because parents and academics considered it impossible for teachers to deliver the same curriculum to all children. This concern may be justifiable given the lack of national standardised assessment which did not systematically monitor the quality of educational provision in schools in order to offer feedback for school and educational improvement. In 1988, the Education Act of Malta (Chapter 327 of the Laws of Malta, 1988) provided the constitutional and legal framework and the main

aims of the Maltese education system in the form of a National Minimum Curriculum (NMC). It was emended again in 2011.

The Ministry of Education and Employment is the Government agency responsible for formal education in Malta (European Commission Directorate-General for Education and Culture [EURYDICE], 2011a, b). It is responsible for the administration, organisation and the financial resources in State schools, from Kindergarten to post-secondary levels, and is empowered to monitor the functioning of schools within all three sectors present in the Maltese education system (EURYDICE, 2011b). These three sectors include State and private schools; the latter is split between private Independent schools and private Roman Catholic Church schools (thereafter referred to as Church schools).

As shown in Table 1.1, the Maltese education system is split between compulsory and non-compulsory education.

**Table 1.1. The Maltese education system.**

<i>Compulsory or non-compulsory</i>	Age (years) <sup>2</sup>	Type of education
<i>Non-compulsory education</i>	3–5	Kindergarten
<i>Compulsory education</i>	5–11	Primary
	11–16	Secondary
<i>Non-compulsory education</i>	16–18	Further
	18+	Higher

Parents can opt to educate their children in State, Church or Independent schools, which provide education from pre-primary to post-secondary levels<sup>3</sup>.

<sup>2</sup> Entry into each year group is on a birth-year basis, meaning that there could be an 11-month difference between the youngest and eldest child in each classroom.

<sup>3</sup> Church schools are supported financially by the State in accordance with the agreement between the Holy See and the Republic of Malta (1991) but they also accept donations from parents and other philanthropists. Following a call for applications by the Archdiocese of Malta, children eligible to

Kindergarten education, which is non-compulsory, is provided for Maltese children aged 3 to 5 years and parents can choose not to send their children to Kindergarten schools. Kindergarten and primary education is co-educational in all school sectors in Malta. School attendance is compulsory for all Maltese children aged between 5 and 16 years.

Compulsory education comprises of six years of primary education and five years of secondary education. It is offered full-time and for free in all State schools which are funded by the State via the Education Directorate on a *per capita* basis (Ministry of Education and Employment, 2013; Sollars et al., 2006). There is a State primary school nearly in every town or village in Malta. Around 61% of children in Malta attend State schools (Ministry of Education and Employment, 2013). While there are budgets allocated to schools which are annually stipulated by the Government, there are no specific budgets allocated for Kindergarten settings and funding depends on particular school projects, or business plans, set by the school and according to needs as determined by its administrators (Ministry of Education and Employment, 2013). The head teacher is responsible for the administration of school funds and determines how these are utilised (Sollars et al., 2006). Therefore, some year groups may not be on the priority list for funding if there are other needs

---

attend a Church school are those whose application has been drawn by a ballot system. Parents whose children were not drawn by the ballot system in Church schools started requesting other educational institutions for their children. This gave rise to an increase in private Independent schools to satisfy the needs of these parents. Independent schools charge tuition fees while parents enjoy a number of tax-relief measures. Around 39% of Malta's primary and secondary school students are enrolled in Church and Independent schools (EURYDICE, 2011a; Ministry of Education and Employment, 2013).

to be met within the school, or if the administration is unaware of what resources are required.

Currently, there are 158 schools in Malta, of which 68 are primary State schools, 32 are secondary State schools, 33 are Church schools and 25 are Independent schools (NSO, 2014b). National statistics published every four years by the NSO revealed that during the scholastic year 2011/2012 there were 8,803 children enrolled in Kindergarten education, of which 4,610 were males and 4,193 were females; and at primary level there were 23,532 children enrolled, of which 12,069 were males and 11,463 were females (NSO, 2014b). The maximum number of children in each classroom is 30, except in kindergartens.

The Maltese education system is bureaucratic (Pace, 2009) and all schools in Malta are obliged to follow the same NMC and to abide by all the regulations as listed in the Education Act (EURYDICE, 2011a; Ministry of Education and Employment, 2013). Maltese is the first language of instruction of children attending State schools, whereas English is usually the language used by teachers in Church and Independent schools. Some lessons, for example Mathematics, are conducted in both Maltese and English in State and private primary schools (Camilleri, 1995).

Local research (Mifsud, 1993, 2012; Pace, 2009; Wain, 1995) showed that the dominant ideology in the Maltese education system emphasises competitive academic achievement and suppresses creativity. This situation still persists as explained by Prof. Borg, who was interviewed during a local television programme (Vella & Tedesco, 2015) where he expressed his concerns that after so many years

and efforts, the Maltese education system is still focused on academic achievement, which results in rote learning that is not useful in real-life situations.

Since 2008, Malta has experienced educational development manifested through a consistent increase in school buildings, restructuring of curricula and more intensive teacher training (see Appendix A). The aim of upgrading educational standards served to promote national interests within an active and dynamic globalised society (Cassar, 2009). However, the geo-political circumstances of Malta seem to have left the Maltese education system in a “*limbo of uneducated existence*” (Cassar, 2009, p. 53). The scarcity of human resources and financial shortages significantly influence the operational and administrative style of Malta’s education system (Farrugia, 1991). A reason for this has been provided by Mayo et al. (2008), who noted that since the cost per capita of services in small States like Malta is higher than in larger States, resources (financial and human) are used to their maximum potential in order to achieve more with less, thus developing a cost-effective and resources maximising, education system. For example, even though Maltese politicians have acknowledged the benefits of investment in the educational system as a means of training which would help set stronger foundations for rapid economic development, teachers cannot be released from classroom duties to attend in-service training and professional development programmes unless they avail themselves of European funding for such purposes. Within my thesis, such an assertions made by Cassar (2009) and Mayo et al. (2008) are of particular relevance because participants in my study are a sample of what these curricula have produced and the participants presented in Chapter 5 attended a State primary school.

## 1.5 Early Childhood Education in Malta

In Malta ECCE refers to the education of children between birth and 8 years of age (Sollars et al., 2006). It has a history that spans over four decades in State schools and a longer history in Church schools, where prior to 1975 ECCE was offered mostly by Church institutions. The first Church kindergartens were present since the late 19th century or early 20th century with some opening as early as 1880 and 1903 by the Franciscan and Ursuline nuns (Sollars et al., 2006).

In 1975, the first mass national ECCE programmes for 4-year-olds began and Kindergarten centres were opened in every primary school in every town and village in Malta and Gozo; in 1988, the first mass national ECCE programme for 3-year-olds was introduced (Sollars et al., 2006). The terms KG 1 and KG 2 were adopted to refer to children aged 3 to 4-years and 4 to 5-years respectively (Ministry of Education & Employment, 2013).

As shown in Table 1.2, ECCE in Malta is divided into two distinct but overlapping sectors: the non-compulsory sector, which is further sub-divided into two sections: child-care for under 3s and Kindergarten for 2 years 9 months - to 5-year olds, and the first two years compulsory primary education, between 5 and 7 years of age (Ministry of Education & Employment, 2012, 2013). At the time of my fieldwork, during the scholastic year 2012/2013, the Ministry of Education and Employment (2013) reported that there were 105 Kindergarten settings in Malta and Gozo which were used by 8,360 children.



**Table 1.2. Non-compulsory and compulsory early childhood education in Malta.**

Type of education	Year group	Age of children (years)
<i>Non-compulsory pre-primary education</i>	Kindergarten 1	3–4
	Kindergarten 2	4–5
<i>Compulsory primary education</i>	Year 1	5–6
	Year 2	6–7

Source: Ministry of Education and Employment (2012, 2013)

Kindergarten schools are currently available within all State primary schools, in most of the Independent and Church schools. The State-funded settings are attached to every primary school located in every town and village in Malta and Gozo, are free of charge and no child can be refused from registering in State-funded Kindergarten setting (Ministry of Education & Employment, 2013). All Kindergarten settings in Malta have a standard ratio of one adult to 15 three-year-old children and one adult to 20 four-year-old children in each classroom (Ministry of Education and Employment, 2013). All Kindergarten settings in Malta must be registered and licensed with the Ministry of Education and Employment (Ministry of Education and Employment, 2013).

### **1.5.1 Politics and early childhood education in Malta.**

Education, including ECCE, has been shaped by global economic demands. Dahlberg et al. (2007) believed that this has subjected children to the power of global economic situations. Global institutions, such as OECD, have had a remarkable influence on promoting ECCE as one with potentially high returns of investments for society (OECD, 2006). The OECD (n.d.) document *Investing in High-Quality Early Childhood Education and Care (ECEC)* stated that there are three broad reasons for putting public resources into high-quality ECCE:

- It has social and economic payoffs for society and for the individual.

- It supports parents and boosts female employment.
- It is part of society's responsibility to education children, to combat child poverty and to help children overcome educational disadvantage. (OECD, n.d., p. 1)

In line with other OECD countries, Malta has been subjected to the Government's interest in ECCE and subsequent Maltese Governments have ensured equitable access to good quality ECCE to all (Ministry of Education & Employment, 2013; Sollars et al., 2006). In particular, ECCE services in Malta were established to help mothers return to gainful employment (Sollars et al., 2006). This leads to another outcome of ECCE becoming described by Moss (2007) as "a commodity to parents-as-consumers" (p. 7). Within this consumerist practice, parents, as consumers, require child-care while working and therefore they have power over what goes on at school.

The document *Early childhood education & care in Malta: The way forward* (Ministry of Education and Employment, 2013) was published following the change in the country's leadership, in March 2013. This document was driven by the labour market needs rather than the well-being of children, in that it specifically stated that it followed the political manifesto presented by the Labour Party in 2013, which promised the Maltese electorate to provide free child-care opportunities for parents (especially mothers) to enable them to join the work-force and to meet one of the EU's Country Specific Recommendations for Malta, i.e. to increase child-care provisions in order to reduce the gender employment gap (Ministry of Education and Employment, 2013).

### **1.5.2 Early childhood education practices in Malta.**

ECCE is known for its child-centered pedagogy. Duhn (2012) stated that notions of children, play and nature have been a significant part of ECCE since the Enlightenment. Western theorists such as Rousseau, Pestalozzi and Piaget have been influential in shaping perspectives in early learning and development in ECCE, arguing that children individually construct their own knowledge through experiential learning. Kolb (2015) defined experiential learning as learning from life experiences.

Historically, in Malta Kindergarten settings were not provided with a formal curriculum. The NMC introduced a curriculum for Kindergarten settings for the first time, where the “main aim of the Curriculum at Kindergarten level is to enhance the holistic development of children” (Ministry of Education, 1999, p. 71). At this level, no formal teaching is supposed to take place, as the main educational objectives should include activities aimed towards the development of the children’s social attitudes, language and communication skills in preparation for primary education. However, since their inception, Kindergarten settings in Malta have been viewed as places where children socialise and prepare for school, and since most settings are directly or indirectly linked to primary schools, they take on the role of preparing children for school. As pointed out by Sollars et al. (2006), this has led to the adoption of methodological practices which are more suitable for older children rather than children aged between 3 and 5 years. Specifically, Sollars et al. (2006) reported that the primary goal of ECCE in Malta is the promotion of intellectual, socio-emotional, physical and moral development, and once children enter compulsory schooling, at age 5, the primary goal of education becomes the

achievement of basic academic skills. Furthermore, these settings tend to follow the same rules and routines as children in primary school, which may not always be beneficial for young children. Furthermore, Sollars et al. (2006) reported that in ECCE classrooms discovery learning and fun activities such as art, storytelling, crafts, play, cooking, music, drama, poetry and singing, are usually absent. Such activities could offer a rich potential for children to learn in meaningful ways.

Once children in Malta enter formal education, that is Years 1 and 2, schooling becomes more intensive and learning through play and exploration is replaced by rigid and demanding, and at times abstract, activities during which children are formally taught mostly factual information which they then have to memorise. Textbooks for core subjects, including Maltese, English and Maths are frequently used and these meet parental expectations as well, particularly if parents invested financially in them. Children generally take part in drama and singing only at Christmas concerts and few exhibitions. It is not uncommon to enter an ECCE classroom and rather than seeing individual child's strengths and achievements, one would see children working on the same activity simultaneously. It is common to see a long line of drawings hung on the wall, which are impeccable but they are all the same, where children were simply asked to colour in a particular picture that would later be displayed in the classroom or in the school corridor. Often, Kindergarten assistants are the ones who make crafts, or even colour pictures for children, so that these look perfect just in case an education officers visits their classroom.

Similar notions of ECCE as preparation for primary schooling within the Maltese education system have prevailed (Ministry of Education & Employment,

2013). The Maltese ECCE system, therefore, diverges from the notions of children and play that are historically associated with ECCE and Froebel's ideas of the Kindergarten. This is not only happening in Malta but also in other countries, for example, in America (Miller & Almon, 2009). Another example of this is evidenced within the Maltese ECCE context by Sollars et al. (2006) who reported that children, as young as 2 and 3 years old, in ECCE contexts were given "homework" to satisfy parental demand for academic achievements later on. Sollars et al. (2006) reported that Maltese parents, and some educators, perceive learning which takes place at school building, and where homework is assigned, as more valuable than learning which happens elsewhere, for example in outdoor contexts, thus believing that children learn best when knowledge and information are transmitted to them and when they engage in rote learning, and are trained in the mechanistic of reading and writing from an early age. Sollars et al. (2006) found that schools which do not offer such learning opportunities are considered of inferior quality by Maltese parents because Maltese parents consider the amount of homework assigned to their children as an indicator of their children's academic development and prowess. Therefore, State schools do their best to satisfy parental expectations by assigning homework for Maltese, English and Mathematics every day and engaging children in the type of learning which helps them achieve good grades in exams. This is an example of the technicist approach described by Moss (2007), where ECCE is seen as a place where young children are prepared for school, and where learning outcomes can be measured via exams rather than a place where children can develop a wide range of capacities. Sollars et al. (2006) suggested that one way to change this system is through parental education to encourage their involvement in school functionings,

where parents are informed about the best practices in ECCE which they can promote at home for the benefit of their children.

Pramling Samuelsson and Kaga (2008) and Duhn (2012) argued that due to the romantic legacy attached to ECCE, this sector of education does not address critical engagement of children with environmental issues. In fact, Holland (2004) compared children in ECCE to mouldable resources for the fulfilment of adults' hopes and desires for a better future. Dahlberg et al. (2007) identified three distinct discourses in ECCE. Although Dahlberg et al. (2007) did not make any reference to the Maltese education system, I consider their discourses to be prevalent within the Maltese ECCE system. First, Dahlberg et al. (2007) identified the deficit discourse which positions the child as immature, and therefore, not yet competent – indeed this views ECCE as a necessary intervention which focuses on outcomes related to a mainstream concept of normal development. Second, Dahlberg et al. (2007) noted a deficit discourse about motherhood, whereby ECCE attempts to replicate an idealised home environment by emphasising relationships and pedagogy of attachment. Third, Dahlberg et al. (2007) identified discourses concerning the global corporatisation of ECCE as a business investment. According to Dahlberg et al. (2007), these three discourses position children as being vulnerable and innocent. Moreover, Malone (2007) argued that discourses such as these also position children as being in need of protection. These discourses are relevant to this thesis in that teachers and parents influenced by them are unlikely to be supportive of the concept of the young child as producer of complex meanings, including around issues of environmental sustainability.

## **1.6 Research Questions**

In light of the above analysis my study was guided by the following research questions:

1. What perceptions of environmental sustainability do young Maltese children hold?
2. What are the contextual influences upon children's perceptions of environmental sustainability?

Answering these two research questions required me to focus on different theoretical perspectives, which will be discussed in Chapter 3, and required me to adopt an interpretive multiple case study approach, which will be discussed in Chapter 4.

## **1.7 Research Significance**

The goal of this thesis is not only to present an empirical piece of research but also to contribute to the emerging literature around the new and emerging field of ECEfS. For this reason, my study responds to calls made by researchers and is significant for closing some of the gaps in ECEfS research.

Young children's perceptions of environmental sustainability are understudied both locally and internationally. International ECEfS researchers (Davis, 2009, 2010; Elliott & Davis, 2013) noted the scarcity in research into young children's perceptions of environmental sustainability; the ways children co-construct knowledge of environmental/sustainability issues; and what they feel they can do about them. My thesis contributes towards filling this gap (but not only) by focusing on Malta.

Rogoff (2003) indicated that each child's learning and needs are diverse and need to be understood within particular cultural and social contexts. Mifsud (2012)

and Pace (2009) pointed out the growing need to explore the perceptions of environmental sustainability of young children living in Malta. Locally, ESD research tended to focus on older children and adults, and to date there has only been one study on ECEfS in Malta, conducted by Gonzalez (2013), which was limited to a small study in school context only. My study moves a step further, in that it also explores the contextual influences upon children's perceptions in the contexts of home and school, and adopts different theoretical perspectives in its design. Such an approach is new to ECEfS research. This makes my study in Malta important for various reasons. First, any ECEfS research there has been was conducted in large States, such as Australia, New Zealand, the UK and others, thus the perspectives of environmental sustainability of people living in small States and how smallness might have influenced these perceptions have not been studied yet. Second, in the context of ECEfS, research informed by the colonial history, religion and culture of small States is scant. Therefore, by focusing on the Maltese context my study makes important contributions to our understanding of how context, culture, colonial history, demographic patterns and religion influence important issues of environmental sustainability. In this regard, the historical, academic and legislative activity discussed above make the Maltese context an interesting case to study; it makes a contribution to international literature in that gives insight into how the insularity of small States coupled with post-colonial history and strong religious beliefs have influenced children's perceptions, or otherwise. Third, my research helps us understand how the reality and environmental issues faced by small States like Malta are inherently different to those experienced by larger States. In so doing,



my study may help initiate similar research in other small States and even international comparative research in different countries.

The family is the first to educate children on society's norms. UNESCO (2014) considered the role of families and communities to be paramount in re-orienting ECCE towards ESD because parents are children's first educators, and caregivers and local communities provide the context for children's living and learning. In this sense, the family is a fundamental social context where children learn to understand the habits, values and norms of society. While the cultural context of family meanings is a core feature of research in several fields, the relationship between young children's meaning-making about environmental sustainability and their participation in family life is unexplored. In particular, Davis (2009, 2010) pointed out that extant research in ECEfS has not paid attention to role of out-of-school context, particularly the home, and how these help children construct their perceptions of the issue. To date, research that explores family and learning contexts in relation to the family dynamics in inter-generational environmental learning is scant (Istead & Shapiro, 2014), even in ECEfS (Davis, 2009, 2010). Thus, although the importance of the family context for children's learning has long been recognised in education, this has not been fully embraced within the ECEfS field. Therefore, research in ECEfS has not yet examined how the family and the school contribute to children's perceptions of environmental sustainability. One of the reasons for this could be the difficulty in getting access into homes since access may be denied by children's caregivers. The aim of my study is thus to understand how a particular contexts can help children construct environmental knowledge and engage in learning with those around them. My study

explores the influences of perceptions of environmental sustainability that take place in the family. Therefore, my study is significant in that it relates familial practices to the children's perceptions of environmental sustainability. My thesis is significant in that it provides, for the first time, a picture of ECEfS in both school and home contexts and the interplay between the two.

OECD (2006) observed that research on the role of carers, parents and teachers in children's environmental learning is scarce too. My study is significant as it is about exploring the perceptions of environmental sustainability of children's parents, teachers and head teacher, which are likely to reveal some of the influences on the children's perceptions of environmental sustainability. The role of educators and parents will be explored in this thesis in a bid to understand how these influence children's perceptions of environmental sustainability. This thesis contributes to our understanding of how young children's perceptions of environmental sustainability are developed through their interactions with context and people therein, and also through other means.

Children are not only part of a family; they are also part of society and they construct their learning in social settings (Corsaro, 2003; Rogoff, 2003), therefore, their social settings must be explored to understand the contextual influences on their perceptions of environmental sustainability. Sorin and Gordon (2013) noted lack of knowledge of how children's ideas of environmental sustainability are formed through their interactions with their surroundings. Local research (Sultana & Baldacchino, 1994) with older children has shown that the tight knit families in Malta have negatively impacted certain developmental stages in Maltese children. In this regard, my thesis may contribute to a better understand of how the Maltese tight

knit community play a role in the development of young children's perceptions of environmental sustainability.

Despite intensive national education reforms, which called for innovative ways of teaching critical thinking skills to help children develop problem-solving skills, something which ESD can help children achieve, the implementation of ESD in general, and in ECCE in particular, in Malta was not always successful. Various initiatives by successive Governments to improve the Maltese education system failed to implement ESD (let alone ECEfS) successfully. My study could be the stepping-stone to assist the design of professional development models that meet the needs of children and educators and help authorities to implement ECEfS across the ECCE curriculum. So, my study variously contributes to the development of educational content and practice.

In the past, ECCE educators have largely been guided by developmentally-appropriate practice (DAP) (Bredekamp, 1987; Bredekamp & Copple, 1997; Copple & Bredekamp, 2009), or the traditional child development theory, common to ECCE. DAP emphasised children's predictable and universal progression through particular stages of development (see Chapter 3). Recently, there has been a growing need for further research that uses different theoretical perspectives commonly associated with ECCE to design ECEfS research. Cutter-Mackenzie and Edwards (2013) argued that qualitative research has considerable potential to contribute to knowledge in this area, but ECEfS research has not yet explored the potential of theoretically informed research. Specifically, they argued that ECEfS can benefit from research that explores the possibilities that are enabled by linking theoretical perspectives across ECCE and EE so as to discover more about young children's learning about

sustainability and the environment. My study responds to this call and moves away from the current influence DAP and applies different theoretical perspectives commonly used in ECCE to ECEfS (see Chapter 3) to explore how young children make sense of environmental sustainability within their social worlds. Such findings can inform both the field of ECEfS and the design of future curricula and educational programmes.

Mackey & Vaealiki (2011) called for research that is “cognisant of children’s rights to have a voice and share their perspectives about ECEfS” (p. 83). My study is underpinned by the ontological perspective that acknowledges children’s right to a voice, as suggested by the Convention for the Rights of the Child (UNCRC) (UN, 1989). Since the 1990s, educational researchers have promoted research that listens to children’s understandings of their social worlds. In so doing, researchers moved away from deficit models in early childhood research towards a strengths-based view of children’s rights to express their ideas as individuals capable of discussing these ideas. By listening to children and creating space, time and opportunities to listen to their voices, my study acknowledges young children’s capacity to discuss issues, such as environmental sustainability, that affect them now and in the future. It also accepts children as human beings capable and competent of expressing their opinions, and of being active participants in different contexts. In my study, I recognise children as environmental stakeholders and participants capable of constructing their own environmental knowledge within different contexts. For this reason, in this thesis I commit myself to listen to children as reliable individuals able to construct and discuss their own experiences and ideas. Thus, I followed the advice of ECEfS researcher (Barratt Hacking, Cutter-Mackenzie, & Barratt’s, 2013;

Cutter-Mackenzie, 2009; Davis, 2010; Elliott & Davis, 2013) and adopted methods for conducting research *with* children rather than *on* children, which in turn provided the theoretical basis for the methodology of my study. Specifically, my study views young children as having agency in their own learning and as having the ability to change their socio-cultural contexts (Clark & Moss, 2011; Dahlberg, Moss, & Pence, 2007). It is hoped that my focus on young children will inform Maltese education generally, and ECEfS in particular.

Finally, taking a “strong” (as opposed to “weak”) sustainability perspective (see Chapter 2), which tends to be concerned with preserving the stock of natural capital (Davies, 2013; Ang & Van Passel, 2012) rather than with sustaining the economic status quo as a guiding ethos, and following on from the principal findings, this thesis tentatively suggests pathways towards solutions to better integrate the practices, learning and outcomes of ECEfS.

## **1.8 Organisation of the Study**

This thesis is organised in seven chapters. Chapter 1 set the scene for my research. It built a case for conducting my research in the new and emerging field of ECEfS.

Chapter 2 provides the context of my study by critically reviewing the extant literature on ESD and ECEfS. It provides an overview of the historical developments in EE and the associated international conferences. It also analyses the purpose of ESD and ECEfS, and the development of definitions across these fields of research as well as dominant approaches and practices adopted within this research area. This chapter critiques established educational paradigms that underpin ESD in attempting to understand how and in what way children perceive environmental

sustainability. This chapter also captures the impact (if any) of wider political, cultural, and historical developments in Malta on the status of ESD and ECEfS, including their position within the NMC. This combined information identifies the strengths, limitations, and weaknesses of ESD. It provides a detailed examination of the modernisation and formalisation of the ESD in Malta, and in particular its relationship with formal ECCE.

Chapter 3 presents different theoretical perspectives currently used in ECCE research to guide the design of my study. In so doing, it provides a new way of applying these perspectives to the new and emerging field of ECEfS. Relevant literature linked to environmental research with young children is also explored in this chapter. Here, the majority of methodological tools that were used with young children are explored and their limitations in providing an in-depth analysis as to what underpins and shapes children's perceptions of environmental sustainability are discussed.

Chapter 4 outlines the methodological approach that was followed in my study – i.e. the interpretive perspective. It then moves on to provide the rationale and justification for the use of a qualitative multiple case study approach and justifies the use of child-centred research methods. Special attention is given to the importance of reflexivity. Lastly, this chapter examines the ethical issues that arise during research with young children.

The next two chapters present the findings of this thesis. They are linked together and should be read in conjunction with each other. Chapter 5 displays the data in the form of case studies and presents fresh empirical evidence that includes children's voices. Here each child's data are presented as an individual case study

and the data from parents, teachers and head teacher are used to support the data presented in each case. Chapter 6 provides an in-depth analysis and critical discussion of key findings from the case studies presented in Chapter 5, which are then linked to the key literature presented in Chapter 2 and Chapter 3. By providing a critical examination of how children view the natural environment and how this is linked to their perceptions of environmental sustainability, it explores what environmental sustainability means for children, educators and parents to reveal further significant insights as to their perceptions of society–environment relations. Evidence in this chapter suggests not only patterns, but also conceptual diversity and complexities in how children interpret these phenomena. Further examination of what influences these perceptions provides new evidence for ECEfS, its relevance to young children, and *vice versa*. Overall, the analysis provides a clear, yet at times contradictory, picture of the influences of such issues on children’s perceptions both inside and outside of school and home contexts.

Chapter 7 concludes this thesis. It provides a critical discussion of the research findings, process and methods used to collect the data. It outlines the contributions to the various fields of literature consulted as part of the research and considers the implications for practitioners, academics, and curriculum and policy-makers. Finally, recommendations to address current gaps in ECEfS are presented.





## **CHAPTER 2: EDUCATION AND SUSTAINABILITY**

My twin interests in environmental sustainability and ECCE have guided my study. The purpose of this chapter is two-fold: to present a review and a synthesis of the literature related to education and environmental sustainability; and to provide the rationale for my study. As a first step, I begin by exploring the concepts of the environment and nature, and sustainable development and sustainability, and how it is presented in the literature. This inevitably directs attention to the core concept of my research – environmental sustainability. I explore the history of sustainability and education, and examine deeper knowledge of these concepts; I go on to examine debates and challenges about education and sustainability that inform my study. Subsequently, I discuss ESD's role in addressing environmental sustainability. This chapter offers an explanation of the ECCE context, with a specific focus on Malta. Then, I continue to explore the connection between ECCE and ESD and to give a historical perspective of ECEfS. I discuss these different labels and concepts and explore ideas from experts in the field and then I provide my own interpretations of these concepts. This is followed by a discussion of the emerging characteristics of ECEfS and my conclusions for this chapter.

### **2.1 Nature and the Environment**

The concepts of “environment” and “nature” are inherently complex. Debates regarding these two concepts abound in literature, especially in environmental sociology. According to Zimmerman (1993), there are two ways to understand nature: first, as an independent entity with rights and values on its own; and second, as the human perception and re-collection of images and ideas. Yet, Park (2004) argued that nature can be viewed as a provider of valuable resources; a

temple for spiritual enlightenment; a source of uncertainty and risk; an inspiration and source of insight; and an organism.

According to Barry (2007), a universal definition of the complex term “environment” does not exist. Of interest to my thesis is Randeria’s (2007) argument that the concept of “the environment” did not exist in most parts of the globe before colonialism. Often the environment is understood as including woodlands, rivers, lakes and mountains, in other words the non-human environment (Barry, 2007), a perspective also adopted in my thesis.

Like many researchers, in this thesis I will use the terms “nature” and “the environment” interchangeably, consisting primarily of ideas that include environmental, evolutionary, or creational thought or a combination of these. Although views about the environment and nature differ, it was evident in the literature that all the groups are allied in their concern for the natural environment, and most agree that a multi-disciplinary approach to conservation is necessary to address current conservation issues.

## **2.2 Human-Environment Relationship**

Current environmental issues call for urgent action and require a fundamental re-assessment of the relationship between the natural environment and society: the human-environment relationship (Balteau & Dogaru, 2011; Harden, 2012); a relationship which has existed throughout human history. Balteanu and Dogaru (2011) defined human-environment relationships as interactions and feedbacks between people and the natural environment, including the links between social and geo-physical systems. This relationship is also influenced by geographical cultural, personal, political, philosophical and religious perspectives. An understanding of

human-environment relationship provides a reasonable way of understanding the rationale behind patterns of human activity under conditions of changing environments. The study of human-environment relationship examines the complex exchange of information on cognitive constructs (such as perceptions, feelings and beliefs) and behavioural patterns between humans and their environments (Golledge, 2006; Moore, 2004), both of which influence human behaviour and the environment. It provides a framework to help researchers examine the past, present and future social and environmental changes in different countries and recognise the complexity of various historical and contemporary influences on society and the environment (Moran & Brondizio, 2013).

Culture and society play a key role in shaping human-environment relationship. Culture is founded in the distinct ability of human beings to conceptualise the world and communicate it symbolically through language (Just & Monaghan, 2000). Some studies attempted to make a distinction between nature and culture. According to Cronon (1996), the nature-culture dichotomy makes a distinction between elements found in nature, such as forests; and elements which make up cultural category, such as towns. Redford (1991) argued that the nature-culture dichotomy is rooted in Western thinking and the idea of the “noble savage” (an innately good individual not tainted by the corrupting forces of civilisation and, therefore, living in harmony with nature). However, the image of the noble savage discussed by Redford (1991) is equally polarised because it is based on a preconceived archetype set in contrast to the West.

Within the social sciences, people’s positions towards the natural environment are increasingly thought of as culturally constructed (O’Malley, 2015).

Various scholars (Bowers 1995; Brookes, 2002; Gruenewald, 2004) believed that cultural perceptions that objectify nature as a resourced commodity have led to the current environmental crisis due to the emphasis on consumer-oriented lifestyles, where high rates of consumption are promoted as desirable despite this being totally unsustainable. Taking this point forward, Boissevain (2013) wrote that since Malta's Independence, environmental degradation has been the result of Governments promoting the idea of using land for development as a sign of progress and development. While this has brought economic prosperity to many, it has degraded the Maltese natural environment to a point where at present there is very little undeveloped land left (Boissevain, 2013; Mayo et al., 2008).

While the nature-culture divide pursued most mainstream geographical thought on human-environment relationships, there were a number of approaches that attempted to challenge this dualism and its inherent logic of one dominating the other. Possibilism (e.g. Vidal de la Blache, 1908) stressed a dialectical relation between nature and culture, in the way that the former provided possibilities for the agency of people. Within regional geography there were attempts made to bridge the nature and culture divide, leaving the question of purity of the two behind (e.g. Sauer, 1925). Later, in humanistic geography, efforts were made to cut across the gap between the physical and the mental by emphasising the subjective experience, and the meaning individuals ascribed to the environment (e.g. Buttimer & Seamon, 1980; Relph, 1976; Tuan, 1974). Recent geographical approaches took clear stands against dualistic divisions and speak in favour of the mixed up and hybridised (e.g. Murdoch, 1997; Whatmore, 1999, 2002), which had brought a turn back to materiality within geographical thought.

From a human geographical perspective nature and environmental concerns are part of the wider context of human-environment relationships. Colonialism, globalisation and global environmental issues have changed the environment and the way people interact with the environment and with each other. Given Malta's long colonial history, the history of imperialism and globalisation is important to my thesis because it helps contextualise current environmental issues (DeLoughrey, Dibur, & Carrigan, 2015; Murphy, 2009). Grove (1995) and Sachs (2003) located the rise of environmental consciousness in colonialism, especially on islands where local governors, out of necessity, became local managers. This has been the case in Malta. As observed by Said (1994) colonialism was an affliction for the coloniser and the colonised. This necessitates an exploration of "the colonial/imperial underpinnings of environmental practices in both 'colonising' and 'colonised' societies of the present and the past" (Huggan & Tiffin, 2015, p. 3). Therefore, an examination of the social processes and the effects of colonialism and de-colonisation on the Maltese people, Malta's natural environment and its resources, are important.

Of relevance to this thesis is Malta's colonial history, the anxious efforts of post-colonisation<sup>4</sup> and how these are interwoven with the history and culture of a nation. Offering a cultural biography of the landscapes of Malta, Boissenvain (2006)

---

<sup>4</sup> Boyd (2013) and Young (2003) described post-colonialism as a political philosophy underlying the right to self-government and sovereignty and the transformation of restrictive, centralizing hegemonic power which intersects with the environmental and social spheres and "challenges corporate capitalism's commodification of environmental resources" (Boyd, 2013, p. 15). Young (2003) contends that "With sovereignty achieved, postcolonialism seeks to change the basis of the state itself, actively transforming the restrictive, centralizing hegemony of the cultural nationalism that may have been required for the struggle against colonialism" (p. 113).

noted that in the 1950s the rural countryside in Malta was uninhabited, there was little concern for the countryside and Malta's rich monumental heritage and the Maltese considered the countryside to be "dangerous, uncouth, uncivilized ... a no-man's land, a wild area, a convenient place to dump all manner of refuse" (p. 89). In post-colonial Malta, the colonial legacy of environmental degradation has been carried on and Malta's environmental and indigenous heritage has been degraded by the market-driven construction and mass-tourism industries, supported by the Government (Boissenvain, 2006; Mayo et al., 2008). Similar notions have been expressed by Murphy (2009), who argued that during colonialism, the relationship between society and the environment worldwide was profoundly changed and the legacies of colonial rule are still important nowadays for three reasons: first, colonial legacy still resonates in our idea of the environment; second, the experiences and memories of exploitation and alienation of people from their land and resources have implications to this day; and third, colonialism still influences contemporary processes.

Recently, geographers sought to build knowledge of the processes through which human activities directly and indirectly change the environment, therefore, recognising the human action can change the biophysical environment and lead to anthropogenic changes and how the latter can be reduced, stopped or reversed (Harden, 2012). Such studies tend to focus on the negative consequences of human action, such as pollution, biodiversity loss, soil erosion, etc. Researchers (DeLoughrey, 2015; Harden, 2012; Neimanis, Åsberg, & Hedrén, 2015; Zalasiewicz, Williams, Haywood, & Ellis, 2011) have argued that the current geological epoch,

known as the “Anthropocene”<sup>5</sup>, marks the recognition of the dominant role human beings play in changing the natural environment. DeLoughrey (2015) explained that this is a new way of understanding human relationships with the devastation of the planet in discourse of species, history, environment and politics. Hackmann, Moser, and Clair (2014) have suggested that human beings should be at the core of environmental change for three reasons: first, social and environmental systems and problems are inter-related; second, in the Anthropocene individuals are altering the Earth’s ecosystems<sup>6</sup> at a remarkable and unprecedented condition of human existence; and third, in response to the environmental challenges humanity is facing, society will either have to seek out deliberately, or be subjected involuntarily to, profound social transformation.

The concept of the Anthropocene has not entirely escaped critique. Malm and Hornborg (2014) argued the Anthropocene is an ideology produced by the dominance of natural science in the field of climate change because as a concept it occluded the historical origins of global warming and sinks the fossil economy into unalterable conditions. According to Ribot (2014), the concept of the Anthropocene failed to account for the deep structural parameters that give rise to vulnerability.

---

<sup>5</sup> Balteanu and Dogaru (2011) specified that the idea of the Anthropocene was analogous to a geological period, denoting the period post-World War II when human impacts upon the environment intensified and even exceeded the capacity of natural ecosystems to recover. According to Hackmann et al. (2014), in an Anthropocene era people and societies are no longer regarded as peripheral to the Earth system but rather as an integral and differentiated part of it (creating the problems and holding the key to their solution as well). In essence, the term “Anthropocene” refers to the current era and reflects various issues caused by anthropogenic activities, where humanity and human activities have become globalised geophysical forces and major drivers of global environmental change.

<sup>6</sup> Ecosystem is a concept which has served as a framework for analysing the human-environmental system as a whole, including interaction and integration between humans and the environment.

Notwithstanding these critiques, the Anthropocene still provided a useful contextual background to examine the relationship between humans and the environment.

Four key problems that currently frame human-environment relations have been identified by Neimanis et al. (2015), including problems of alienation and intangibility (people can find it difficult to relate to environmental issues over time, scales and space, which leads to disengagement from taking actions in favour of the environment); post-political situation (despite the strong complexity and dimensionality of environmental problems, such as levels of consumption, ethical and economic relationships between global North and global South, the responsibility toward non-human species, the responsibility for future generations, and strategies to mitigate climate change, there is a strong tendency in politics in many countries to deal with green issues in a neutralised political climate); negative framing of environmental change (the current negative and almost apocalyptic framing of environmental issues by the media have a significant impact on people and may decrease individual participation to act pro-environmentally and would stifle opportunities for innovative thinking around environmental issues); and compartmentalisation of “the environment” from other spheres of concern (both practical and ontological, where concerns around environmental justice, racism and poverty are still narrowly framed as environmental, particularly in environmental policies and governance). Neimanis et al. (2015) argued that environmental humanities could help address these problems by engaging in a self-reflexivity in order to re-imagine the relationship between humans (culture) and the environment (nature). They argued that even though environmental humanities is hard to define, it denotes an understanding of and a response to global environmental issues are



fundamentally social and human challenges rather than just environmental issues, using humanities as a mode of inquiry. Thus, environmental humanities have “sought to complement and/or serve as a counterpoint to environmental science approaches to non-human ‘nature’” (Neimanis et al., 2015, p. 70). Neimanis et al. (2015) suggested four directions to deal with the above-mentioned problems, including attention to diverse environmental imaginaries; re-thinking of the “green” field: nature-cultures and feminist genealogies; trans-disciplinary and post-disciplinarity; and the development of “citizen humanities.” Therefore, following from this discussion, I argue that by understanding human-environment relationships, ECEfS researchers will be informed in decisions concerning children’s involvement in the management of environmental sustainability.

In this thesis I believe that human-environment relational knowledge is developed via an experiential, or interactional process, and “that our behaviours reveal how we have bridged the gap between information encoded and stored in long-term memory, our sensing of the world around us, and the hard facts of objective reality” (Golledge, 2006, p. 77).

### **2.3 Sustainable Development**

The environmental impact of human activities is not a new phenomenon. Human reliance on natural resources for survival has impacted the environment, which has led to environmental degradation and a host of global environmental problems ranging from pollution, loss of biodiversity to global warming (Intergovernmental Panel on Climate Change [IPCC], 2014). Heightened public awareness of the negative impacts of anthropogenic environmental change started in

the 1960s (A. Gough, 2013). Awareness of the human effects on climate change has become even more evidenced and accepted (IPCC, 2014).

The concept of sustainable development first appeared in the late 1970s, in Wes Jackson's work in agriculture (Orr, 2001) and then in the World Conservation Strategy (International Union for Conservation of Nature and Natural Resources [IUCN], 1980). The term "sustainable development" began to acquire status after the 1980s and was characterised by increasing awareness of global environmental issues at the time, such as ozone depletion, climate change and famine in Africa.

The World Commission on Environment and Development (WCED) made sustainability a central feature of its Brundtland Report (WCED, 1987). This report highlighted the contrast between the needs of economically developing countries and the standard of living of economically developed countries. It alleged that people in the developing world resort to survival practices which are deleterious to the natural environment, and contrasts this with the high standards of living in economically developed countries which has other deleterious consequences. While these survival practices may produce instant gratification for people, this report pointed out that it had implications for future generations. Thereafter, the concept of sustainable development became the key principle underpinning official environmental policy, at both national and international levels (WCED, 1987). However, it was following the 1992 United Nations Conference on Environment and Development [UNCED] (UNCED, 1992), that the concept of sustainable development started to gain real importance.

One of the most commonly cited definitions of sustainable development is taken from the Brundtland Report, "development that meets the needs of the present

without compromising the ability of future generations to meet their own needs.”

(WCED, 1987, p. 43) This definition represented the first formal recognition that development, growth and progress need to take account of their environmental impacts. The Brundtland Report (WCED, 1987) is credited with offering a starting point for the analysis of this concept and for gaining political authority and widespread recognition for the idea of sustainable development. At first glance, the Brundtland definition may seem appealing, but it has also been controversial as it fails to clarify what kinds of needs are being referred to, and which needs can, and/or should be satisfied; therefore, sustainability remains complex and difficult to define (Hoffman & Bazerman, 2007). Leal Filho (2000) claimed that the Brundtland definition of sustainability is too broad, too ambiguous and subject to misinterpretation.

Various labels have been used to capture broadly similar concerns on sustainable development and it has been interpreted in a variety of ways (Leal Filho, 2000). Indeed, Scott and Gough, S. (2003) have located over 300 definitions of sustainable development in the academic literature. It has been the subject of considerable debate, because it is an evolving concept (Pigozzi, 2007; UNESCO, 2005f); it is highly ambiguous (Fien & Tilbury, 2002; Tilbury, Stevenson, Fien, & Schreuder, 2002), is abstract (Van Dam-Mieras & Rikers, 2007) and has been described as an oxymoron (Redclift, 2005, 2009).

Part of the difficulty in defining this concept lies in the use of the two terms “sustainable” and “development” together (Gonzalez-Gaudiano, 2006; Skamp, 2010; Tilbury & Cooke, 2005). Jabareen (2008) argued that while “sustainability” stands for environmental protection, “development” stands for the economic perspective,

thus sustainable development aims to mitigate the paradox between the two terms. The term “sustainable development” as defined in many international documents refers to human well-being and quality of life while maintaining environmental integrity, facilitated by economic and technological development. Sustainable development is about human relationships and the relationships between humans and the environment. However, those who consider the concept of development to mean economic growth are likely to find the attempt to align growth with sustainability restrictive.

Those who consider development to align with aid may consider sustainability to apply only to developing countries. Thus, the term seems to imply that it is possible to address the ecological crisis without affecting the existing rate of development. Moreover, the use of the two terms together tends to promise that ecological sustainability and economic development can coincide, which is probably one of the reasons why sustainable development has achieved widespread support (Sachs, 1993). Dubois (2004) argued that part of the difficulty in defining sustainability lies in the appropriation of the term by experts and those with vested interests.

### **2.3.1 Sustainable development or sustainability?**

The terms “sustainability” and “sustainable development” are socially constructed concepts (Robinson, 2004), which are often used as synonyms. Even though these two terms are often used interchangeably, they are also highly contested terms. Palmer, Cooper, and van der Vorst (1997) argued that there is no consensus over the definition of sustainability and sustainable development, and the choice of terminology used by the speaker usually indicates her/his points of view about the

issue, making the term problematic. Robinson (2004) contended that those who propagate a techno-centric approach, which is oriented towards efficiency gains and improvements in technology tend to prefer to use the term “sustainable development”, whereas those who propagate an eco-centric approach, and focus on fundamental changes in individual attitudes towards nature and value-related questions, prefer to use the term “sustainability.”

In the literature, there is a continuum between concepts of “weak” to “strong” sustainability, which has a foundation in economics (Davies, 2013). Ang and Van Passel (2012) claimed that since the 1990s, the weak sustainability versus strong sustainability debate has focused on the sustainability of natural capital. Capital was defined by Neumayer (2003) as “stock that provides current and future utility” (p. 8), where natural capital implies the totality of nature; human-made capital includes environments developed by humans, such as factories, machinery and roads. Neumayer (2003) included a third type of capital: human-capital or knowledge, which differs from the human-made capital.

Ang and Van Passel (2012) argued that supporters of weak sustainability suggest that natural capital and human-made capital are interchangeable. In other words, depletion of one form of capital can be compensated by a surplus in another. However, Neumayer (2003) suggested that according to the weak sustainability paradigm, human-made capital is more important than natural capital and therefore natural capital can be substituted for human-made capital. Ang and Van Passell (2012) maintained that from a weak sustainability perspective, financial valuation of natural resources, ecosystems and future environmental damage are the most important. Weak sustainability advocates the need to conserve natural resources but

at the same time it still continues to emphasise economic development through economic growth, human-made capital over natural capital, very often with very little regard to the consumption of natural resources, and the power of the human race, through technology, to control nature. Weak sustainability proponents also believe that technological progress can improve human lives despite environmental degradation.

As a counter perspective, strong sustainability adopts a more eco-centric lens, where the environment is of major importance and where human-made capital can never substitute for finite natural capital. Davies (2013) argued that within the strong sustainability paradigm, natural capital cannot be substituted with human-made capital. Ang and Van Passel (2012) stated that supporters of strong sustainability suggest that natural capital and human-made capital should be regarded as complementary, but while natural capital is diminishing, human-made capital is increasing. Therefore, from a strong sustainability perspective, natural capital should be looked after and the value of natural capital should not decline. Proponents of strong sustainability take an economic perspective with regard to natural capital, i.e. they believe that the monetary value of natural capital should be measured. From this perspective of sustainability, we need a change in economic progress within the current context of the deterioration of the planet. This view of sustainability moves the focus away from economic growth toward a more socially just society that can exist in harmony with nature.

Ferro, White, Cox, Bebbington, and Wilson (2011) argued that sustainability pushes the boundaries of our thinking and actions beyond climate change and/or recycling toward a pragmatic shift in the way we look at the world, nature and

humans, and attempts to raise awareness that the physical, social and intellectual worlds are inter-connected and inter-dependent. For these reasons, Ferro et al. (2011) suggest that sustainability:

calls for a redefinition of the “environment” no longer narrowly defined as “nature” but instead conceived as a context of relationships that exists and takes on meaning in relation to the beings who inhabit it, with awareness that these beings are human and non-human interties who, through their presence and activities, contribute to its shaping. (p. 7)

Sustainability is the preferred terminology throughout this thesis. This means that I will be adopting a strong sustainability perspective throughout because I believe that human-capital should not substitute for natural capital. I believe that natural capital is more important for the well-being of life on Earth than human-made capital.

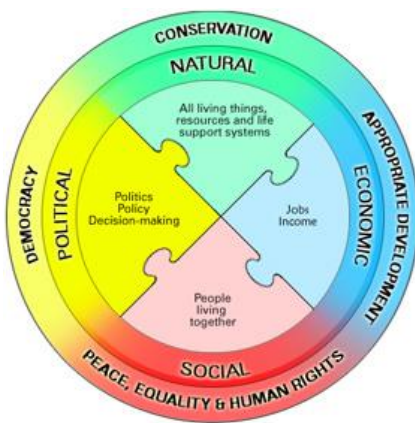
### **2.3.2 The pillars of sustainable development.**

The Brundtland Report refers to three pillars of sustainability: economy, society and the environment (WCED, 1987). However, Sterling (2010) disputed that such a simplistic categorisation of sustainable development (as proposed by the Brundtland Report) hinders people from seeing the issues in terms of dynamic relations and interconnectedness. Since the Brundtland Report, scholars have criticised and re-established the pillars of sustainable development.

Some scholars refer to four pillars of sustainability by adding culture to the existing three pillars (Skamp, 2010). Fien (2001) and UNESCO (2002), for example, proposed pillars of sustainability which are grounded in four inter-dependent systems: biospherical systems, economic systems, social systems, and political systems. Yencken and Wilkinson (2002) used a similar approach but distinguished between the social and cultural in Fien’s (2001) third pillar, but they included

cultural rather than political as their fourth pillar because they believed that new politics are underpinned by strong environmental policy. Huckle (2005) referred to five pillars: ecological, economic, social, cultural and personal.

As shown in Figure 2.1, sustainability as a concept draws together environmental protection and economic, social and political development. Nature, society, economic and politics play inter-dependent and complex roles in the quest for sustainability. Therefore, environmental degradation becomes a threat to all living beings (including humans) on the planet.



**Figure 2.1. The four dimensions of sustainable development.**

Source: UNESCO, (2005c)

Economic sustainability – aims to provide a continuous means of livelihood, both in terms of jobs and money, for people (Fien, 2004).

Social sustainability – aims to provide ways for people to be able to live together peacefully, equitably and with respect for human dignity and human rights (Fien, 2004).



Political sustainability – aims for political systems to exercise power fairly and democratically to take decisions about the way the social and economic systems use the natural environment (Fien, 2004).

Environmental sustainability – As described in detail in the next section.

## **2.4 Environmental Sustainability**

Environmental sustainability is one of the pillars of sustainable development. It is considered a prerequisite to achieving sustainability in general. Many researchers described environmental sustainability. For example, Goodland (1995) described environmental sustainability as a natural science concept that is governed by biophysical laws. Environmental sustainability is also governed by, “Biophysical systems which provide the life support systems for all life, human and non-human” (Fien, 2004, p. 185). Thus, environmental sustainability is generally defined as the “maintenance of natural capital” (Goodland, 1995, p. 10) and the “maintenance of natural resources” (Goodland, 1995, p. 14), where natural capital is referred to as the natural environment. According to MacDonald, Hanley, and Moffatt (1999), “natural capital is generally defined as any stock of natural resources or environmental assets, such as oceans, forests or agricultural land, that yield a flow of useful goods and services now and into the future” (p. 74). UNESCO (1997a) defined environmental sustainability as, “a dynamic balance among many factors, including the social, cultural and economic requirements of humankind and the interpretive need to safeguard the natural environment of which humanity is part” (Item 32, p. 13).

Goodland (1995) explained that environmental sustainability refers to two fundamental environmental services that are of utmost importance for the survival of

life-support systems on Earth: the sources and the sinks. Sources include raw materials, such as food, water, air and energy, and sinks include outputs and wastes. Goodland maintained that both sources and sinks are finite, and significant damage to them will impact on the survival of life on Earth because their self-regeneration properties are often slow. This explains why many aspects of environmental sustainability provide the basis for the guiding principles for a sustainable society.

Environmental sustainability permits the use of the natural environment for the benefit of humanity, provided that people do not degrade it to a level where it will not sustain itself. Human impact on the natural environment will affect natural resources depending on whether these resources are sustainable or not. This is affected by whether natural resources can be used, or harvested, but not depleted (e.g. solar energy), renewable (e.g. trees and fish) or non-renewable (e.g. fossil fuels) and the ways they are used. Therefore, environmental sustainability is also associated with the impact human activity has on the natural environment that in turn would have an impact on all living creatures (human and non-human) and all life systems on Earth, now and in the future. As explained by Fien (2004), environmental sustainability is concerned with the conservation of natural systems to ensure that all life forms on Earth are utilised and protected in ways that do not compromise quality of life for future generations.

UNESCO (2002) stated that in order to ensure sustainability, people must learn how to think of the consequences of their own actions, envision a sustainable future, and create the steps needed to achieve this vision. Since then, environmental sustainability has become a prominent global issue because the current patterns of human living and consumption of natural resources cannot be sustained. Concerns

about the current state of the environment have been acknowledged through recent international agreements and reports for which international co-operation has been sought. One such agreement was the Kyoto Protocol (United Nations Framework Convention on Climate Change [UNFCCC], 2008), which was signed by Malta in 1998 and ratified in 2001. As a member of the EU, Malta has implemented the EU's Emissions Trading Scheme and it still has a relatively low emissions per capita ration within the European Union (Malta Resources Authority [MRA], 2013).

Despite global efforts and international agreements, the United Nations Environment Programme [UNEP] (UNEP, 2011) reported that positive international actions on environmental sustainability have seen limited progress. In fact, UNESCO (2012b) reported that:

moving towards sustainable development cannot be achieved by political agreements, financial incentives or technological solutions alone. To safeguard the natural environment and promote greater global equity, we need a fundamental change in the ways we think and act. This can only be achieved if all individuals and societies are equipped and empowered by knowledge, skills and values as well as heightened awareness to drive such change. (UNESCO, 2012b, para. 1)

As Schoon, Seath, and Jackson (2013) pointed out, current living patterns cannot be sustained. Recently, IPCC (2014) reported that problems caused by unsustainable lifestyles are increasing, which include an increase in global average temperatures and sea levels, a rise in carbon emissions and increasing rates of deforestation.

Community dynamics are central for creating transformation in society for sustainability (Stocker & Kennedy, 2009). Monaghan (2009) argued that environmental sustainability calls for innovation and creativity in order to transform communities through environmental responsibility. Respecting, defining and

celebrating different cultures and communities is essential for achieving sustainability (Monaghan, 2009; Stocker & Kennedy, 2009). Yet, there is no denying that different communities have different capital (economic, social, political and cultural), making reasonable and fair allocation of natural resources problematic because these impact on how natural resources are used and preserved. Often, poor communities are most vulnerable to challenging living conditions beyond their control.

However, societal change does not happen overnight. It has been argued that culture plays a vital role in this regard (Stocker & Kennedy, 2009; UNESCO, 2012a) because certain societies are more resistant to change. Malta is a case in point, where Pace (2009) observed that its long history of colonialism has created a culture of resistance towards change and this has affected how the Maltese care for the natural environment. Pace (2009) believed that the Maltese people still consider the environment as belonging to the colonisers and therefore they reject any responsibility toward the natural environment.

As suggested by Stocker and Kennedy (2009), environmental sustainability can be encouraged through personal responsibility for environmental issues. Relying on personal responsibility for environmental sustainability will always be a global challenge. Monaghan (2009) observed that individual behaviour is influenced, and perhaps limited, by the cultural, political, social and economic realities of the community. I would add that personal responsibility for environmental issues is dependent on the personal characteristics of the individual; in order to be responsible, one needs to learn what behaviour is appropriate, and what is not. Therefore, it follows that in studying the perceptions of environmental sustainability in my

research, it is important to examine the beliefs of particular individuals, how individuals act, how the community reacts, and the interchange between all three.

In this thesis, I argue that to achieve environmental sustainability, we need to maintain a balance between the natural, social, cultural, and economic capital of the planet, including all the natural resources, (e.g. the seas, forests and the land) that are present for the use of current and future generations of living communities. By living communities I include in my definition all the living creatures (human and non-human) on the planet. Sustainable practices must become embedded in a way of life for all citizens, beginning in early childhood. The United Nations International Children's Emergency Fund [UNICEF] (UNICEF, 2013) acknowledged that children under age 18 represent approximately one-third of the world's population and they have a right to a sustainable future. They will inherit the problems resulting from the unsustainable practices of previous and current generations. Should these practices persist, children and life systems on Earth will have the most to lose because they will experience the impacts for longer. Therefore, children need to be equipped with skills to face these challenges in the future. They also need to be equipped to work alongside adults to create improvements wherever possible.

Children have a fundamental right to explore their own agency with regard to their future. UNICEF (2013) claimed that sustainability starts with healthy, safe, and well-educated children and their needs, rights and voices are inter-dependent with sustainability. Education is believed to contribute significantly to environmental sustainability because it has the potential to offer immediate economic, social and environmental benefits – as discussed in the next section.

## 2.5 Environmental Worldviews, Values and Attitudes

Human-environment relationships are shaped by individuals' environmental values, attitudes and worldviews more generally. There are several distinct reasons for exploring children's worldviews, or orientations, in the context of the current global environmental and sustainability issues. First, Western worldviews are seen as the root-cause of environmental sustainability issues and thus a change in these worldviews could benefit the environment. Second, a change in lifestyle is essential in re-orienting society toward sustainability, therefore, and understanding of individuals' worldviews appear to be crucially important in this process. Therefore, insights into children's environmental worldviews appear to be an essential element in helping us analyse and understand their perceptions of environmental sustainability.

In literature, worldviews have been investigated in the context of environmental and sustainability issues from a range of different theoretical and disciplinary perspectives and various definitions of worldviews exist. Blewitt (2015) described a worldview as:

a set of beliefs and assumptions about life and reality that influence the way we think and behave. Worldviews help us describe the reality before us and they encompass many assumptions about such things as human nature, the meaning and value of life, society, institutional practices and much more. (p. 39)

A line of research that differentiates human ideological positions toward nature concerns environmental worldviews, which can range from anthropocentric to bio-centric or eco-centric (Clayton, 2012). Clayton (2012) explained that individuals with eco-centric or bio-centric worldviews are more "willing to conserve nature for its own sake, across different contexts and situations" (p. 340). A bio-centric

worldview is life-centred with all forms of life having an equal right to exist and the non-living environment is seen as having only an instrumental, or utilitarian, value in supporting the living environment. An individual with a bio-centric worldview believes that protecting a species is more important than protecting individual members of that species. An individual with bio-centric worldviews can also see people as having an obligation to protect all living creatures, implying that, for example protecting fauna is more important than the protection of flora. An eco-centric worldview is Earth-centred, where it is believed that biodiversity and the natural environment requiring continued protection.

In contrast, individuals with an anthropocentric worldview are more “willing to conserve nature only when linked to any specific advantage to human beings” (Clayton, 2012, p. 340). Thus, in an anthropocentric worldview people are viewed as the “masters” of the natural environment (Fien, 1993). From an anthropocentric perspective people are believed to have intrinsic value while nature has instrumental value in that its worth is determined only by its value and benefits to people. In essence, environmental worldviews influence how environmental and sustainability issues are perceived, the roles and responsibilities of individuals regarding these issues and what actions they take toward them. The expression of personal values, such as environmental worldviews, may influence the process of knowledge and information sharing, therefore, worldviews have implications for action too.

A transformation towards sustainability requires a shift in values. Indeed, worldviews held by individuals can determine their values (Horling, 2015; Washington, 2013). Even though value orientations may seem similar to worldviews, Guagnano et al. (1995) argued that compared with value orientations,

worldviews are less general because they deal with a specific domain of life. White, Beddington and van Koten (2012) distinguished between two types of values: values as indicators of wealth; and values as a set of principles representing standard behaviour. In this thesis, I take values to mean the latter and I also acknowledge that values can be either individual (personal), collective, or both. I also acknowledge that the relationship between individual worldviews, and individual and collective behaviour is a complex one. Individuals may contextualise an environmental issue in space (here-there) and time (now-later) in many different ways, depending among others on their capabilities. Nevertheless, de Vries and Petersen (2009) argued that a particular worldview may not necessarily coincide with a particular situation, for example, in terms of access to resources and capabilities, which in turn influences behaviour and well-being. Therefore, values serve as guiding principles in life, which in the case of this thesis may, or may not, influence environmental attitudes and behaviour.

Individual (personal) values are influenced by the way people make sense of their environment in symbolic ways. Three value orientations are often distinguished in the literature with regard to environmental behaviour (De Groot & Steg, 2008; Steg, Dreijerink, & Abrahamse, 2005; Stern, 2000; Stern & Dietz, 1994; Stern, Dietz, & Kalof, 1993), including:

- *Egoistic value* - which reflects one's interest in maximising one's own individual outcomes. Individuals with an egoistic value orientation consider the costs and benefits of behaving pro-environmentally for them personally.



- *Social-altruistic value* - which reflects one's interest in the welfare of others. Individuals with an altruistic orientation consider the costs and benefits of behaving pro-environmentally for other people.
- *Biospheric value* - which reflects an interest in the welfare of non-human species and the biosphere. Individuals with a biospheric orientation consider the costs and benefits of behaving pro-environmentally for the entire ecosystem and the biosphere. Even when human-centered values interfere or a particular behaviour might cause inconvenience or discomfort, an individual with a biospheric value orientation has the tendency to still behave pro-environmentally.

Similar categorisations of value orientations have been provided by Nordlund and Garvill (2002, 2003), including the dimensions of *self-transcendence* (like social-altruistic and biospheric value orientation, reflects values that serve collective interests and that transcend beyond the individual's own interest) versus *self-enhancement* (like an egoistic value orientation, serve only to satisfy individual interests). Research (Nilsson, Von Borgstede, & Biel, 2004; Nordlund & Garvill, 2002; Steg et al., 2005; Stern, 2000) has shown that self-transcendent value types are positively related to behaving pro-environmentally, while self-enhancement value types relate negatively to behaving pro-environmentally. However, this does not necessarily mean that social-altruistic and biospheric values are the same. Research by Nordlund and Garvill (2002; 2003), in which they distinguished between the concepts of eco-centric values and anthropocentric values (a mixture of social-altruistic and egoistic values), showed that both individuals with an eco-centric and an anthropocentric value orientation were aware of the problems that the

environment causes for humans. However, Nordlund and Gravill (2002; 2003) reported that only individuals with eco-centric values demonstrated awareness of threats to the biosphere caused by environmental problems.

Several studies have confirmed the role of value orientation in predicting behaviour. For example, a study by Nordland and Garvill (2003) showed that more than 40% variance in behaviour-specific personal norms with regard to the environment could be explained by values, particularly biospheric values, together with problem awareness. This is not to say that individuals with an egoistic or social-altruistic value orientation cannot behave pro-environmentally. Nevertheless, it is important to take into account the fact that some individuals can be motivated to act pro-environmentally without perceiving the consequences of environmental problems for themselves. For example, individuals can behave pro-environmentally because they think such behaviour will save them money (egoistic values), or because they think it will benefit future generations (social-altruistic values).

Collective cultural values are linked to sustainability and have an important role in practices and styles of behaviour because they too influence the construction of environmental sustainability. Several researchers (Frisk & Larson, 2011; Horlings, 2015; White & Harder, 2013; White et al., 2012) agreed that values are shaped by the culture, social norms and by personal experiences. Nevertheless, values constantly change in every society and, while there might be some norms which are held by all members of a community at a point in time, considerable diversity is also present (White et al., 2012). This is of interest to my thesis because like many other countries, Malta has been affected by the development of

neoliberalism<sup>7</sup> and some cultural values have changed over the years. In taking this point forward, White et al. (2012) argued that sustainable futures embrace the diversity of perspectives offered by individual viewpoints because individuals can offer different forms of capacity and can emerge as community leaders at key points in community mobilisation. Toward this end, Steg et al. (2005) suggested that environmental messages can be tailored to meet the individual's value orientation as values direct attention to value-congruent information. This is also of interest to my thesis because if value orientation could influence the information individuals pay attention to and the willingness to support environmental protection, environmental messages might be more effective in encouraging pro-environmental behaviour if they take children's underlying value orientation into account for example.

Interestingly, de Vries and Petersen (2009) reported weak correlations between value orientations and socio-economic indicators, such as income, age and education. Of relevance to my thesis and to the Maltese context is de Vries and Petersen's (2009) example about transportation to illustrate the mismatch between environmental worldviews and reality: for a majority of individuals the preferred way of transport will reflect personal values, however, the links between values of choice and behaviour will be varied and variable because individuals often find themselves in a variety of roles: as employees they may focus on speed, as parents they may focus on safety, as a tourist they may focus on comfort etc. As is the case in Malta, people prefer private modes of transport despite traffic issues they face on

---

<sup>7</sup> White et al. (2012) defined neoliberalism as promoting "the individual as the focus of value and promotes competition to better oneself and the desire for status as marked by consumption and ownership of material goods" (p. 8).

daily basis. Even though people are aware of the traffic issue, they are knowledgeable about it, they did not shift their values and this calls for additional examination into the barriers that might come into play.

Fien (1993) argued that environmental attitudes are underpinned by worldviews. Environmental attitudes have been defined by Liefländer and Bogner (2014) as intentions and beliefs “which may lead to actions that either prevent or reduce harm to the environment or that may even benefit the environment” (p. 105). Liefländer and Bogner’s (2014) definition makes it clear that environmental attitudes, in contrast with worldviews, are beliefs specifically related to environmental issues rather than to life in general. According to Ajezn (1988) and Gifford (1997), it is generally accepted that attitudes have three components: cognitive (individual’s knowledge about an issue), affective (individual’s feelings towards an issue) and conative (individual’s intentions and behavioural responses to an issue). However, these definitions are not universal practice especially since attitudes are communicated and transmitted through language in order to be perceived and understood by others, leading to differences in communication of issues and their understandings.

Many studies have attempted to explore the link between worldviews, attitudes and behaviour with the aim of determining the consistent, or casual, link between attitude and behaviour. Toward this end, researchers have developed quantitative methods to measure pro-environmental attitudes and to investigate the effect of educational programmes on the development of pro-environmental attitudes, such as the revised New Environmental Paradigm [NEP] (Dunlap & Van Liere, 1978; Dunlap, van Liere, Mertig, & Jones, 2000); and the Two Major

Environmental Values (2-MEV) model (Bogner & Wiseman, 1999, 2002, 2006).

Research in environmental attitudes (Guagnano, Stern, & Dietz, 1995; Heimlich & Ardoin, 2008) has found low predictability of an individual's pre-disposition to engage in specific behaviours in favour of the environment, whereas attitudes towards specific issues have greater predictive value.

The "New Ecological Paradigm for Use with Children" survey (Manoli, Johnson, & Dunlap, 2007) was a quantitative technique developed to explore children's environmental worldviews, ecological understandings and environmental actions, and how education affects those variables with upper elementary school children. Schneller, Johnson and Bogner (2015) stated that little research has been conducted to investigate children's environmental values due to "lack of solid age-appropriate empirical measurement scale" (p. 62). They further argued that approaches to research such as the anthropocentric framework of the Dominant Social Paradigm [DSP] (Dunlap and Van Liere 1984), the eco-centric framework of the NEP (Dunlap and Van Liere 1978; Arcury, Johnson, & Scollay 1986), and the Ecological World View scales [EVW] (Blaikie 1992) masked some aspects of environmental perception by examining only anthropocentric or eco-centric views toward nature and the environment.

If environmental attitudes are underpinned by environmental worldviews then the consideration of young children's worldviews may help to inform their perceptions of environmental sustainability. Yet, despite the frequently argued potential for sustainability, no study has yet explored young children's worldviews in relation to the goals and issues of environmental sustainability. An extensive survey of children's environmental worldviews was beyond the scope of my study because I

was interested in understanding children's perceptions of environmental sustainability and how these were influenced by context rather than in measure their environmental attitudes. However, it is relevant to consider the evidence of environmental worldviews held by children in my study, as these are likely to influence their perceptions of environmental sustainability, as well as their proposed and actual environmental actions.

## **2.6 Pro-Environmental Behaviour**

Different researchers attempted to define pro-environmental behaviour (PEB) as relevant within the context and purpose of their studies (see Table A in Appendix B). The most commonly known definition of PEB was offered by Steg and Vlek (2009) as "behaviour that harms the environment as little as possible, or even benefits the environment" (p. 309). To adequately investigate children's perceptions of environmental sustainability and the contextual influences upon these, it is necessary to discuss how factors influence children's PEB.

Kollmuss and Agyeman (2002) and Stern (2000) explained that PEB is complex and no single theory fully explains why individuals act the way they do, mostly because of complex human behaviours in different contexts. Indeed, several complex and opposing theories attempted to explain PEB (see Table B in Appendix B). These range from linear theories of causality from the 1970s, which affected knowledge-led behaviour, to more complex theories of causality where various contributing and mediating factors led to different degrees of behaviours.

In PEB literature, two major lines of research focused on individual motivations to engage in PEB: the economic approach and the ethical approach (Stek & Vlek, 2009). The economic approach is based on the assumption that individuals

make reasoned choices based on highest benefits against lowest costs and, therefore, individuals engage in PEB when they are aware of the private benefits of the voluntary environmental actions. The ethical approach focuses on the role of moral and normative concerns underlying environmental behaviour. Steg and Vlek (2009) identified four major perspectives which have been identified in theory to explain the ethical approach, including: value-based concerns, environmental concerns, moral obligation, and social norms. Pro-environmental behaviour under an economic perspective is rational and self-oriented, whereas PEB under an ethical perspective focuses beyond an individual's own self and is concerned with benefits for the environment and the community at large.

Nevertheless, individual behaviour is influenced by factors other than ethical and economic ones. Kollmuss and Agyeman (2002) made a categorisation of factors which influence PEB, including: (i) demographic, which include gender and years of education; (ii) internal/personal, which include motivation, pro-environmental knowledge, awareness, values, attitude, locus of control, responsibilities and priorities; and (iii) external factors, which include institutional factors (e.g. infrastructure), economic, social and cultural factors. Normative reasons explain what actually shapes individual behaviour, therefore, intrinsic motivations such as values, attitudes and norms, are mostly influenced by the microsystem (Bronfenbrenner, 2005).

In my study, I define PEB as behaviours, or actions, that are undertaken by individuals consciously (adopting ethical or economic approaches) or unconsciously, in different contexts, to benefit the environment. I acknowledge that individuals are motivated by instrumental reasons, as well as by normative ones. In the former case,

individuals are generally motivated by extrinsic factors and, therefore, they weigh the costs and benefits of PEBs and consequently adopt behaviours that bring them some financial benefits. I also believe that social (norms, beliefs, values), economic (income, investments) and ecological (natural resources, ecosystems) factors are direct and indirect determinants of individual PEB, or otherwise. In my thesis I selected these factors because many studies discussed in this thesis suggested that worldviews, knowledge, values and attitudes influence environmental behaviour, despite continuing debates about their relationship. Therefore, in my study, children's and adults' PEBs in different contexts, which lead to their perceptions of environmental sustainability, can be explained fully by incorporating the perspectives together.

## **2.7 Knowledge-Action Connection**

Sustainable behaviour requires individuals to take action (White & Harder, 2013). Implicit in the notions of environmental programmes is the idea that knowledge leads to action. There is no universally agreed definition of knowledge and the field is characterised by a different propositions and interpretations. In the field of ESD, some authors (Frisk & Larson, 2011; Kollmuss & Agyenman, 2002; White, 2013) have also differentiated between types of knowledge. Even though knowledge is difficult to define, here I adopt White's (2013) definition as "not just the acquisition of facts but has deeper meanings; it is commonly defined as justified true belief" (p. 168) about particular issues.

While some basic knowledge of environmental issues may be necessary for people to understand that they need to act pro-environmentally, knowledge is not enough on its own to encourage people to take action. Indeed, environmental



researchers (Chaplin & Wyton, 2014; Hines, Hungerford, & Tomera, 1987; Jensen, 2002; Kempton, Boster, & Hartley, 1995; Kollmuss & Agyeman, 2002; Stern, 2000) have been critical of the contribution of knowledge toward PEB, describing the link between them as spurious because in spite of education's valuable goal, environmental research has shown that standard knowledge-based environmental programmes have failed to achieve the desired transformative behaviour change. Therefore, while ecological (declarative) knowledge (Fisk & Larson, 2011) has been the focus of educational programmes, this kind of knowledge has been the least effective in promoting PEB. Monroe (2003) argued that while declarative knowledge does not appear to directly motivate behaviours, the lack of such knowledge may act as a barrier to set in motion behaviour change. For example, knowledge about water management may not motivate people to save water but lack of knowledge about the proper storage of water in dry countries like Malta may lead to drought in summer. These studies represented a variation between knowledge and understanding of environmental issues and actively taking action to reduce one's impact on the environment, a widespread phenomenon known as a "value-action gap" (Blake, 1999), resulting in less frequent engagement in PEB.

### **2.7.1 Value-action gap.**

The value-action gap (Blake, 1999) explained that simply providing individuals with information about environmental issues does not necessarily lead to behaviour change. Therefore, even though individuals might indicate awareness and understanding of an environmental issue and be aware of behaviours to reduce that problem, they do not necessarily follow through and take action to fix the problem. Blake (1999) attributed responsibility for the failure of the majority of pro-

environmental models to consider individual, social and institutional constraints and their assumption for rationality and systemic use of information by individuals.

Blake (1999) suggested that the attitude-behaviour relationship is moderated by two primary sets of variables: the structure of personal attitudes, which according to Blake (1999) “are likely to be better predictors of behavior if the attitudes in question are strong relative to other (possibly conflicting) attitudes, and based on direct experience” (p. 264); and external (or situational) constraints, which Blake (1999) referred to “whether the behavior is in line with the individual’s favoured social norms, which in turn are influenced by different social, economic, demographic, and political contexts” (p. 264).

Blake (1999) added three other barriers that work in favour of the aforementioned gap, which are: (i) individuality: individual barriers are those that are person-specific and are related to that individual’s attitudes, cognitive structures and beliefs. An individual who is either not interested in environmental issues or feels that other topics require more attention is less likely to adopt a PEB; (ii) responsibility: many individuals feel that they should not be responsible for environmental issues or that one person’s actions cannot possibly make a difference, leading many not to engage in PEB; and (iii) practicality: certain constraints prevent an individual from taking action, such as lack of time, lack of money, or lack of information, and many individuals may feel unable to engage in a PEB, even if they have a positive attitude toward it.

There have been conflicting approaches as to how to address the value-action gap. While some researchers believed that educating the public on specific environmental issues and actions is the best approach to encourage individuals to

take action, this is contrary to the idea of the value-action gap (which does not necessarily include a deficit in environmental knowledge). Others have argued that better understanding of individual characteristics and the social context in which environmental behaviour occurs is more important to understand in order to ensure the adoption of individual environmental actions. Given these points of view, it seems that the provision of information and the process of learning and developing values have their impact in different ways, which has to do with the information and knowledge diffusion within the family and the school. For this reason, in my study I look at context and how it influenced the perceptions of environmental sustainability of children and their significant adults.

### **2.7.2 Action competence.**

Since linear models of causality were essentially deficit models which were too simplistic to generate environmental action, environmental researchers began to propose a variety of different models in their attempts to capture the complex interrelationships of factors that may lead to PEB (Heimlick & Ardoin, 2008; Kollmuss & Agyeman, 2002). Research by Fritze, Blaski, Burke, & Wiseman (2008) showed that knowledge of environmental issues without knowledge of actions or skills that enable PEB, can lead to worry and anxiety in children, which can further lead to a sense of hopelessness, distress and despair about the world's environmental state. Ojala (2011) reported that some children have described unwillingness towards taking pro-environmental actions if their despair and anxiety remained unchallenged by activities that foster ownership, hope and empowerment. Jensen (1993, 2002, 2004) and Jensen and Schnack (2006) labelled these feelings of despair and unwillingness to act as "action paralysis" and suggest that "action

competence” would lead to change this scenario. Jensen (1993) suggested the term “action competence” in an attempt to differentiate between activity-oriented EE, such as a one-off visits to science centre, and action-oriented EE, such as community-based environmental interventions. In EE, the goals of action competence grew out of earlier characterisations of education *in*, *about* and *for* the environment.

Mogensen and Schnack (2010) described action competence as an education ideal, situated in a utopia which is closely linked to democratic and political education and understanding actions. They explained that from a philosophical point of view, a key feature of action competence is the idea of cultivating habit of taking action as opposed to indoctrination; epistemologically, an action competence approach emphasised that action-oriented teaching-learning has important learning potentials. Therefore, in EE action competence came to be understood as connection of: knowledge about environmental issues, knowledge of how to act for the environment, and a willingness to act, which together contribute to a person’s ability to act (Jensen & Schnack, 2006). For children to acquire action competence they need to be aware of the conflicts and controversy underlying an environmental issue. Since environmental and sustainability issues are not just about human-environment relationships, but also conflicts of interest between, and with, human beings (Schnack, 1998), children need to be involved in informed democratic discussion about environmental problems so that through discussion they can understand conflicts involved and become aware of the issues and empowered to take action.

Mogensen and Schnack (2010) explained that to achieve action competence approach educators are encouraged to help children develop capabilities for to democratic, participatory and action-oriented teaching and learning which can help

children develop their abilities, motivations and desire to take active roles in finding democratic solutions to sustainability issues. These can be considered examples of developing locus of control, personal responsibility and contextual learning and social norms. These are psychological concepts commonly used in by scholars of behaviour change which are linked for example to Hines et al.'s (1987) model of responsible environmental behaviour.

If environmental actions are underpinned by environmental knowledge, worldviews, attitudes and values then the consideration of young children's perceptions of environmental sustainability may help to inform their understandings of the issue.

## **2.8 Education and Sustainability: A Historical Perspective**

In the 1960s, scientists attempted to find scientific solutions to the environmental problems the Earth was facing (Elliott & Davis, 2013). As science alone could not solve the world's environmental crisis, education was envisaged as key to teaching people to address environmental problems (A. Gough, 1997). As A. Gough (2013) explained, EE arose out of the growing awareness of environmental degradation in the 1960s.

In 1969, the term "environmental education" appeared in the literature for the first time, in an article by Stapp, Bennett, Fulton, MacGregor and Nowak (1969), where EE was described as education "aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution" (p. 31). In fact, A. Gough (2013) stated that EE, which emerged in the late 1960s and early 1970s, was concerned with the introduction of ecological and

environmental content into educational curricula and training in order to promote general awareness of environmental problems.

During the 1970s, conferences hosted by the UN led to a number of draft concepts, visionary statements and action plans about the environment. EE first gained international recognition in 1972 at the United Nations Declaration on the Human Environment (UNEP, 1972), which formally recognised global environmental issues and asserted the importance of education and training as a means of solving these environmental problems. This was also the first international discussion of the relationship between humans, the environment, and development. Wright (2002) reasoned that this declaration introduced the concepts of sustainability, indirectly, too. The issues outlined in the Stockholm Declaration (UNEP, 1972) were further addressed at the International Workshop on Environmental Education, held in Belgrade in 1975, as a result of which, the Belgrade Charter (UNESCO, 1975) was developed. This declaration stated that the goal of EE must be to develop a worldwide awareness of and concern about the problems caused by human activity on the environment, as well as possible solutions and the prevention of new problems.

In 1977, the Tbilisi Declaration (United Nations Educational, Scientific, and Cultural Organization–United Nations Environment Programme [UNESCO-UNEP], 1978) drew international attention to the emerging concepts and implementation of EE on a global scale. It emphasised the importance of research and training in EE to inform and educate the public about environmental issues. Wright (2002) argued that the Tbilisi Declaration is considered to be one of the most important guidance documents in the development of the field of EE. In 1987, the Brundtland Report

(WCED, 1987) prioritised education as a means of achieving sustainable development. It stated that, “the world’s teachers will have a crucial role to play in bringing this report to them [the young generation]”, whose well-being, “is the ultimate goal of all environment and development policies” (WCED, 1987, p. xiv).

The Earth Summit (also known as the Rio Summit) held in 1992, served to facilitate an international trend towards an expanding view of EE and align it with sustainability. During the Rio Summit there has been a significant shift in terminology: from EE toward the promotion of ESD. The Rio Declaration of Environment and Development and *Agenda 21* (UNCED, 1992) were produced at this summit. The forty chapters of *Agenda 21* (UNCED, 1992) outline a comprehensive plan of action to be taken globally, nationally and locally, by signatories, for sustainability at all levels at which humans impact on the environment. In *Agenda 21* (UNCED, 1992) many countries committed themselves to promoting sustainability in a variety of ways, including education (Fien & Tilbury, 2002; Huckle, 1991). Finger (1993) maintained that many environmentalists believe that the UNCED process that led to the Rio Summit and *Agenda 21* (UNCED, 1992), has handed much of the control over the global environment to the nation States. Sachs (1993) believed that this passing over of control to individual nations led to many of the environmental problems the world had to face because different nation States have been able to set their own environmental agenda, based on their personal worldviews and their needs, which is a strategy that would not benefit the environment.

Chapter 36 of *Agenda 21* (UNCED, 1992) proposed education as key to sustainability issues and called for the re-orientation of EE towards addressing

sustainability (Tilbury, 1995; Tilbury & Wortman, 2004). In other words, *Agenda 21* is the global action plan for environmental protection, which stated that, “education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues” (UNCED, 1992, ch. 36, para. 3). This initiated a global discussion on the role of education in concepts of sustainability that builds on human capacity to know, understand and act.

Additionally, *Agenda 21* recognised the connection between sustainability and EE by pointing to the Tbilisi Declaration as providing “the fundamental principles for the proposals” (UNCED, 1992, p. 320). A. Gough (2013) stated that the Declaration and Recommendations from Tbilisi paved the way to formalising the field of EE and provided the basis for the principles of *Agenda 21*. Since the Rio Summit, most UN agreements and regulations associated with major conferences have acknowledged education as essential to a sustainable future and have attested to its importance as a tool to initiate and sustain social change processes towards sustainability.

In the 1990s, EE began to distinguish between three environmental approaches identified by Lucas (1972): education *about*, *in* and *for*. This distinction constitutes a socially constructed framework for thinking about EE, which allows for an explanation of the different aims and approaches to the teaching of EE under specific circumstances. This has been the most commonly accepted interpretation of EE, where:

Education *about* the environment deals with concepts and knowledge about environmental issues and is predominately cognitively based. “This approach which is also commonly referred to as environmental science or studies, is the prevalent form of EE in schools” (Tilbury, 1997, p. 2).



Education *in* the environment is the direct environmental experience and is “pupil-centered and inquiry-based learning facilitated by more open-ended and flexible teaching styles” (Tilbury, 1997, p. 2). This approach resonates with ECCE, and is also often found in non-formal education programmes.

Educating *for* the environment focuses more on developing values and action skills and:

regards environmental improvement as an actual goal of education ... Through engaging students in social and political education, education *FOR* the environment not only empowers them to take responsibility for their own actions but also enables them to reflect upon how these actions influence the environment. (Tilbury, 1997, p. 3)

Debates about the priority and usefulness of different interpretations of these terms are ongoing. Fien and Gough A. (1996) reported that education *in* and *about* the environment provided the necessary skills and knowledge to support education *for* the environment. Reid (2011) identified the distinctions made between theories or practices of education in terms of *about*, *in*, *for*, *through*, *being with*, *by*, and more recently, education *as* sustainability. In essence, these concepts are debated in terms of, “either their fit with current local and wider approaches to framing and practicing EE approaches, or their potential and shortcomings as a framework for learning that stimulates or reinvigorates approaches to EE” (Reid, 2011, p. 151).

In 1997, UNESCO sponsored the International Conference on Environment and Society: Education and Public Awareness for Sustainability, which was convened to celebrate the twentieth anniversary of the Tbilisi Declaration and to further discuss the role of education in addressing sustainability (Knapp, 2000; Wright, 2002). As a result of this conference, the Thessaloniki Declaration (UNESCO, 1997b) recognised EE and its advancement over the previous 20 years in

addressing sustainability issues. The Thessaloniki Declaration marked an international movement away from EE towards ESD by calling for a “reorientation of education as a whole towards sustainability” (UNESCO, 1997b, p. 2). Despite the changes in the definitions, practices, and principles of EE, and the way society addressed environmental issues, the goals and principles of EE still retained the core concepts presented in the Tbilisi Declaration and were reinforced in the Thessaloniki Declaration. In fact, Jickling and Wals (2012) argued that EE has, since its inception, held the same goals as those of ESD.

In 2002, the World Summit on Sustainable Development (WSSD) aimed to establish strategies for more effective implementation of *Agenda 21* (UNCED, 1992). The Johannesburg Declaration on Sustainable Development (WSSD, 2002) established a series of international commitments in five priority areas: energy, water, health, agriculture and biodiversity. Later in 2002, the United Nations General Assembly (UNGA) adopted Resolution 57/254 (UN, 2002) that designated the period 2005 to 2014 as the United Nations Decade of Education for Sustainable Development (UNESCO, 2005a, 2005b), to encourage the integration of the concept and practice of sustainability into all aspects of education and learning (Mula & Tilbury, 2009; UN, 2002). The idea of dedicating a decade for ESD was first proposed at the 1992 UNCED, to signal that education and learning are essential to achieve sustainable development. The Decade of Education for Sustainable Development (DESD) challenges humans to adopt new behaviours and practices that will sustain life (human and non-human) on the planet. In fact:

The overall goal of the Decade of Education for Sustainable Development (DESD) is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behaviour that will create a more sustainable future

in terms of environmental integrity, economic viability, and a just society for present and future generations. (UNESCO, n.d., para. 1)

UNESCO's role is to act as diplomatic guide and motivator for Member States and not as an enforcer. Therefore, as the leader of the DESD (UNESCO, 2005f), UNESCO developed a participative International Implementation Scheme (IIS) draft in 2004 (UNESCO, 2006) to serve as a reference point in DESD in order to facilitate the implementation of its goals. The IIS (UNESCO, 2006) outlined a broad and strategic framework for implementing the DESD and outlined UNESCO's tasks as the leader of the DESD, together with key milestones for the DESD, and a description of the way forward. Although the IIS was not prescriptive, it provided a useful tool and overall guidance, as to how, when, why, and where participating Member States can contribute to DESD (UNESCO, 2006).

In 2007, the Tbilisi+30 Conference, in which the Ahmedabad Declaration (UNESCO, 2007) was published, and stated that EE processes support and promote ESD. Two years later, the Earth Charter aimed to promote:

the transition to sustainable ways of living and a global society founded on a shared ethical framework that includes respect and care for the community of life, ecological integrity, universal human rights, respect for diversity, economic justice, democracy, and a culture of peace. (Earth Charter International, 2009, p. 1)

As indicated by Stirling (2010), the Earth Charter was a declaration based on an integrative or holistic ethic, based on an essentially relational and participative view of the world.

The UNESCO World Conference on ESD held in Bonn in 2009 marked the mid-term point of the DESD and assessed the progress in ESD and the DESD (Tilbury, 2009; Wals, 2009). As a result, the Bonn Declaration (UNESCO, 2009a)

was produced, which provided guidance for the second half of the DESD and specified action needed in different educational settings (A. Gough, 2013). Lotz-Sisitka (2009) argued that the Bonn Declaration was the first declaration to deal exclusively with ESD and set out a strong mandate and agenda for UNESCO as the leading agent for ESD.

The UNESCO summit on climate change in Copenhagen, in 2009 (UNESCO, 2009b), mentioned capacity-building to support adaptation action in developing countries for sustainability in relation to technology transfer and the adaptation of new or modified technology. However, Sarabhai (2010) argued that this summit did not include ESD as an indispensable part of a low-emission development strategy and lifestyle change for a sustainable future.

In 2012, the UN Conference on Sustainable Development (UN, 2012), also known as the Rio+20, convened in Brazil to mark 20 years after the Rio Summit. Here, the UN Member States expressed concern about the scale and seriousness of the impacts of climate change. Although progress and commitments to sustainability were made, a discussion on education as a means to achieve sustainability did not emerge from Rio+20.

In 2007, UNESCO established a Monitoring and Evaluation Expert Group (MEEG) to assist in the monitoring and evaluation of the DESD and to provide technical advice and support to UNESCO in assessing global progress of the DESD (UNESCO, 2014). UNESCO (2014) reported that the MEEG designed a global monitoring and evaluation framework to measure the impact of the DESD, and three global monitoring and evaluation reports were produced in 2009, 2012 and 2014. The final report produced in 2014 by MEEG, *Shaping the Future We Want-UN*

*Decade of Education for Sustainable Development* (UNESCO, 2014), has been designed as a guiding document for the implementation of policies, for future programming across UN agencies, social organisations, private sector and educational sectors, and as a guide to how the findings therein can be used for future research, innovation and work in ESD.

## **2.9 Education for Sustainable Development**

UNICEF (2013) stated that in order to achieve sustainability, we need a shift in values, awareness and practices to help people change the currently unsustainable patterns of consumption and production. As asserted by Sterling (2001) and UNESCO (2005b, d), education is key to achieving a shift in thinking, values and practices required for the transformation of society towards sustainability. In fact, educating people is seen as part of the solution to current environmental problems. Education is therefore considered to be a primary agent of transformation, fostering the values, behaviour and lifestyles required for a sustainable future. Specifically, UNESCO (2013, para. 1) explained that ESD “empowers everyone to make informed decisions for environmental integrity, economic viability and a just society for present and future generations, while respecting cultural diversity.”

Education for sustainable development has the strategic intention to re-orient education to support sustainability (UNESCO, 2005b). As explained by UNESCO (2014), ESD deals with current global issues that are characterised by uncertainty and which require critical thinking and call for the empowerment of citizens to take action for sustainability. For this reason, ESD learning refers to learning to:

- ask critical questions;
- clarify one’s own values;

- envision more positive and sustainable futures;
- think systemically;
- respond through applied learning;
- explore the dialectic between tradition and innovation.

(Tilbury, 2011, p. 8)

As shown in Table 2.1, ESD has four major thrusts and seven strategies.

**Table 2.1. Four major thrusts and seven strategies of ESD.**

<b>Four major thrusts of ESD</b>	<b>Seven strategies for ESD</b>
1. Improving access and retention in quality basic education	1. Vision-building and advocacy
2. Reorienting existing educational programmes to address sustainability	2. Consultation and ownership
3. Increasing public understanding and awareness of sustainability	3. Partnership and networks
4. Providing training to advance sustainability across all sectors	4. Capacity-building and training
	5. Research and innovation
	6. Use of information and communication technology (ICT)
	7. Monitoring and evaluation

Source: UNESCO (2014, p. 17)

The dynamic concept of ESD continues to evolve. Indeed, there have been various debates within the field that require an explanation. These different perspectives and definitions will help the reader understand the terminology and perspectives guiding my study. One of the debates in the field is on the multiple interpretations and ambiguities among scholars about the definition of ESD (Stevenson, Wals, Dillon, & Brody, 2013). An often-cited definition of ESD is:

Education that allows learners to acquire the skills, capacities, values and knowledge required to ensure sustainable behaviour; education dispensed at all levels and in all social contexts (family, school, workplace, community); education that fosters responsible citizens and promotes democracy by allowing individuals and communities to enjoy their rights and fulfil their responsibilities; education based on the principle of life-long learning; education that fosters the individual's balanced development. (UNESCO, 2005e, p. 9)

UNESCO (2005e) also stated that ESD encourages creative and critical thinking skills to help individuals solve problems related to sustainability.

ESD evolved from a narrow definition of EE to encompass a convergence of inter-related issues across all dimensions of life. Jickling and Wals (2012) declared that a unanimously agreed definition of ESD and its relationship to EE does not exist. In fact, Wals (2009) pointed out that the terms EE and ESD have been used interchangeably in curriculum documents, policy documents and within the community groups around the world. Wals (2009) stated that international governing bodies (e.g. UNESCO and IUCN) together with a group of researchers argue that EE is only one of three spheres that must interact and combine towards the pursuit of ESD. However, Jickling and Wals (2012) confirmed that there is also a group of researchers who argue the EE has, since its inception, held the same goals as those of ESD. Swazye and Creech (2009) maintained that even though the trajectories of ESD and EE often mirror each other, the differences are in the methodology and delivery mechanisms. Sterling (2010) suggested that any closed definition of education for change, whether EE or ESD, involves drawing conceptual boundaries that might be risky.

Somewhere in the middle, there is another group of researchers who consider the move towards ESD as an evolution of EE (Tilbury, 2004). Wals (2009) called this perspective EE for SD (sustainable development) or “environmental education for sustainability” (EESD) (p. 12). This might be considered as an attempt to reconcile EE and ESD by encouraging ESD through an environmental lens. However, Jickling and Wals (2012) argued that despite attempts to provide a clear definition of ESD, it is these different interpretations that make it so ambiguous.

Elliott and Davis (2013) argued that terminologies and understandings of ESD, EE and education for sustainability (EfS) are evolving constructs and are complex to define.

Indeed, there are different terminologies within the field. Skamp (2010) documented that the term “education for sustainable development” is a term used in the UK and in many European countries. Briguglio and Pace (2004) and Pace (2007) too used the term “education for sustainable development” in Malta. Lavery and Smyth (2003) explained that term “sustainable development education” is used in Scotland as a compromise between EE and ESD. Davis and Elliott (2014) explained that the term “education for sustainability” has mostly supplemented EE as the term of choice in Australia and New Zealand, although sometimes both terms are used interchangeably. Other terms referring to ESD include: “learning for sustainability” (Tilbury & Cooke, 2005); “sustainability education” (Jones, Selby & Sterling, 2010); and “adjectival education” (Smyth, 1999).

Another debate in the field concerns the pedagogy of ESD. Vare and Scott (2007) described ESD as a “learning process – it certainly won’t be about ‘rolling out’ a set of pre-determined behaviours” (p. 3). By combining content, learning methods and outcomes, ESD can help individuals develop a knowledge base about the environment, the economy, society and culture, in addition to helping individuals learn skills, perspectives and values that guide and motivate them to seek sustainable livelihoods, participate in a democratic society and live in a sustainable manner.

Vare and Scott (2007) distinguished between two inter-related and complementary approaches to ESD: learning “for” sustainability, which they called ESD 1; and learning “as” sustainability, which they called ESD 2. Vare and Scott



(2007) described ESD 1 as a type of education that entails a basic type of learning and that is driven by expert knowledge. They stated that ESD1 is the UN DESD's view of ESD. ESD 1 is achieved through raising awareness of the necessity for change. It indicates which goods and services will reduce the ecological footprint of human activity and which positive actions will be guided with incentives and penalties. ESD 1 results in measures that reduce environmental impacts, such as saving water and energy for example. Vare and Scott (2007) described ESD 2 as an educative process whereby individuals learn how to do things differently and more effectively. ESD 2 helps individuals think about what it means to be more sustainable. ESD 2 makes sustainability an open-ended, collaborative and reflective learning process that includes the inter-generational dimension and the concept of environmental limits. Vare and Scott (2007) compared ESD 1 and ESD 2 to Yin and Yang, where ESD 2 makes ESD 1 more meaningful. They stated that unlike ESD 1, the success of ESD 2 cannot be measured in terms of environmental impacts because future decisions are based on individual circumstances and individual decision-making.

Despite the multiple viewpoints of ESD and the complexities in defining it, here I adopt the definition of ESD proposed by Martin, Dillon, Higgins, Peters, and Scott (2013) as "a process of learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities" (p. 1523). It is worth noting that in their definition of ESD, Martin et al. (2013) referred to all communities as including all species on the planet. In this thesis whenever I refer to ESD, I suggest that it involves learning that works towards Martin et al.'s (2013)

definition, as opposed to education that only supports economic growth at the expense of the environment and the well-being of living communities on the planet.

In taking this way forward, it is important to understand the interconnectedness of sustainability, which shapes the knowledge, skills, values and structures of curricula for ESD. Education for sustainable development is more than just raising awareness about environmental issues. It is about developing the processes and skills for a sustainable society. It focuses on developing closer links among environmental quality, human equality, human rights and their underlying political threads (Fien & Tilbury, 2002; Henderson & Tilbury, 2004). It encompasses a vision for society that is ecologically, socially, economically and politically sustainable (Fien, 2001), and therefore a society that shows respect for everyone irrespective of social contexts (Scott & Gough, S., 2003).

I acknowledge that there is no unanimously agreed definition of ESD, a concept which is still ambiguous to many, but I embrace this ambiguity as an opportunity for the concept to continue to take on new meanings as it evolves. Despite the multiple viewpoints of ESD and the complexities in defining it, here I adopt the definition of ESD proposed by Martin, Dillon, Higgins, Peters, and Scott (2013) as “a process of learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities” (p. 1523). In their definition of ESD, Martin et al. (2013) referred to all communities as including all species on the planet. Indeed, previous definitions of the term relate to historic understandings of ESD. Modern understandings of ESD, which are not just about the three pillars of sustainable development, are emerging and this recent one by Martin et al. (2013) tried to address many of these issues by including an action

context. I believe that this is the best definition of ESD there is at the moment. It reveals the complexity and multiplicity of the inherent values, and moral and ethical dimension, of environmental and social issues that position ESD as a precursor to action for social transformation towards sustainability and provides equity and social justice to all living communities on the planet. I also embrace the emphasis on ESD as an opportunity for educators to use transformative pedagogies to cultivate pro-environmental attitudes and values in children that would then result in willingness to act. In this thesis whenever I refer to ESD, I suggest that it involves learning that works towards Martin et al.'s (2013) definition, as opposed to education that only supports economic growth at the expense of the environment and the well-being of living communities on the planet. In taking this way forward, it is important to understand the interconnectedness of sustainability, which shapes the knowledge, skills, values and structures of curricula for ESD. Finally, I acknowledge that the inherent limitation of focusing my study primarily on the environmental sphere of ESD, but I justify this decision based on the need for focus inherent in postgraduate research combined with my pre-existing experience in EE and ECCE.

### **2.9.1 ESD in Malta and in the National Minimum Curriculum.**

In Malta, ESD in formal and informal education has been mainly addressed by the Ministry of Education and Employment, the MEPA, the University of Malta and various environmental NGOs (Briguglio & Pace, 2004). In the past each of these organisations used to function independently of the others, however, in recent years there have been by several attempts by these organisations to co-ordinate educational activities (Briguglio & Pace, 2004; Mifsud, 2012; Piscopo, 2008).

Pace (2007, p. 212) reported three major phases which led to the evolution from EE to ESD in Malta, including: (i) Awareness phase (1960s–1970s), characterised by irregular activities organised by NGOs, aimed at raising public awareness and shaping public opinion to improve the state of the Maltese environment; (ii) Fragmentary phase (1980s – early 1990s), characterised by the institutionalisation of EE when various actors assumed responsibility for EE, but failed to co-ordinate initiatives. In the 1980s, the formal education sector started to give some importance to the study of the environment and other conservation issues. Environmental education was introduced in Maltese schools, for the first time, in 1982, for children from Year 3 (7- to 8-year-olds) and older (Mifsud, 2012; Ventura, 1993). This action was aimed at teaching children at primary level good formation in character and scientific knowledge in the environmental field which would result in their appreciation and safe-guarding of the Maltese environment (Ministry of Education, 1999); and (iii) Co-ordinated phase (from mid-1990s), characterised by the setting up of the National Environmental Education Strategy (NEES) in 1995. Briguglio and Pace (2004), Mifsud (2012) and Pace (2002) noted that since its inception, NEES was constrained by limited resources and funding, and ESD was not a priority. Indeed, Malta still lacks a clear national policy on EE, which has resulted in a waste of human resources and missed opportunities. Following Malta's application for EU membership in 1990, the Government increased its commitments towards environmental protection and the first environmental law in Malta, known as the Environmental Protection Act, and as from 1992, a number of other laws were passed thereafter. Mifsud (2012) argued that this phase was unsuccessful for

mismanagement of human resources within different Government agencies responsible for EE at the time.

There have been two notable attempts at developing an ESD policy in Malta, including the setting up of the NEES (Pace, 2007); and the revision of the NMC (Ministry of Education, 1999) in 1996, neither of which was successful (Briguglio & Pace, 2004). For the first time, in 1996, curriculum innovations were introduced in Malta through a holistic framework of guidelines advocating an inter-disciplinary approach together with the necessary support infrastructure, including a nationwide consultation exercise with a variety of stakeholders (Briguglio & Pace, 2004). The NMC, which was designed by the Ministry of Education, was approved by the Maltese parliament in 1999 and implemented from October 2000 till October 2013, when it was replaced by the National Curriculum Framework [NCF] (Ministry of Education and Employment, 2012) for the period from October 2013 until October 2026. Since the NMC (Ministry of Education, 1999) was the curriculum in place at the time of the data collection for this thesis, in this discussion I will focus on it rather than on the NCF (Ministry of Education and Employment, 2012).

The NMC (Ministry of Education, 1999) listed a set of goals for children's learning in Maltese schools but it did not provide subject-specific learning objectives. However, learning objectives were listed in the subject-specific syllabi. The NMC advocated a learner-centred approach, thematic teaching, development of critical thinking and participatory skills, inter-disciplinary approach to education and encouraged the decentralisation of the education system to encourage public and NGO participation in the educational system (Pace, 2007). In essence, the main aim of the NMC was to prepare citizens for the challenges of the new millennium. This

innovative approach to Maltese education was a good opportunity that would have helped the introduction of ESD principles and methodologies in Maltese educational system (Bezzina & Pace, 2004). Pace (2007) noted that the NMC “proposed several measures that, if implemented, would iron out incongruencies and facilitate the infusion of ESD in the educational system” (p. 213). Specifically, within the NMC Principle 4 encouraged schools to offer *Education Relevant for Life*, whereas Principles 7, 3 and 6 called for educators to ensure a *Holistic Education* fostering *Stimulation of Analytical, Critical and Creative Thinking Skills* and *Nurturing Commitment* (Ministry of Education, 1999, p. 25-27). The NMC also encouraged educators to present a global perspective in their activities and “to promote the view that the sustainability of life on earth is contingent on our everyday choices” (Ministry of Education, 1999, p. 21). Objective 7 focused on *Preparing Educated Consumers* (Ministry of Education, 1999, p. 43) and developing an “awareness of the consumer's responsibilities to the environment and society... [and] appreciation of the importance of consumer co-operation and solidarity” (Ministry of Education, 1999, p. 44). Objective 11 aimed at facilitating *Wise Choices in the Field of Health* (Ministry of Education, 1999, p. 48) so that through their behaviours students will show “respect for life and for the quality of human life; respect for one's health and that of others...” (Ministry of Education, 1999, p. 49). The *EkoSkola*<sup>8</sup> programme

---

<sup>8</sup> The *EkoSkola* programme is a local Eco-Schools programme (Foundation for Environmental Education [FEE], n.d.). The EcoSchools programme was launched in 1994 by the Foundation for Environmental Education (FEE) and now includes over 7000 schools distributed around the world. It was aimed at systematically weaving ESD principles within a school's management policy progressively incorporating an environmental ethic within the school ethos. The programme adopts a whole-school approach to ESD by empowering students to adopt an active role in environmental decision-making and action in schools and in their community (Briguglio & Pace, 2004). It seeks to raise environmental awareness and to promote sustainable development at a local level in the classroom and, in the wider community, through the implementation of the United Nations' Local Agenda 21. *EkoSkola* was introduced in Malta as a pilot project in 2002 by Nature Trust (Malta), in collaboration with the government (Nature Trust, 2007). Children aged 7 to 8 year and older

(thereafter referred to as *EkoSkola*) was introduced to reach these specific aims (Briguglio & Pace, 2004).

According to Pace (2007), *EkoSkola* has been instrumental and successful in creating change within the formal education sector in Malta, in that it redefined the top-down management approach where children and adults became equal partners in the process of change. *EkoSkola* has also encouraged the holistic development of Maltese schools and opened up innovative collaborative strategies with Local Councils (Mifsud, 2004, 2012; Pace, 2007). Nonetheless, Mifsud (2012) noted that some primary schools seemed to be more interested in gaining points for *EkoSkola* certification rather than raising the intrinsic value of environmental stewardship in the whole-school community. Therefore, even though environmental activities in schools and the community have increased, particularly due to the schools' participation in *EkoSkola*, EE projects funded by the Government only serve to achieve environmental policy objectives with short-term goals that only serve to promote the Government's agenda (Mifsud, 2012).

The majority of schools in Malta, especially State schools, adopt a traditional, mono-disciplinary and exam-oriented pedagogy, where the teacher is seen as the provider of information and the children reproduce that information during exams. Such system tries to domesticate children to meet teachers' demands and keeps them

---

participate in this programme (Malta Environment & Planning Authority [MEPA], 2008). It encourages the participation of children in decision-making, planning and implementation of environmental activities with the aim of improving the quality of life in their school and community. Pace (2009) suggested that *EkoSkola* was purposefully introduced in Malta to encourage active student participation in environmental issues through whole-school approaches and to date, several schools have been awarded the Green Flag<sup>8</sup>.

competing against each other for teachers' and school's recognition (Mifsud, 2012). Moreover, teachers' success is dependent upon children's percentage pass rate of exams. In this scenario, experiential and participative pedagogy and outdoor learning, which are advocated by ESD, are perceived by educators and parents as a waste of time (Mayo et al., 2008; Mifsud, 2012). Local researchers (Bezzina & Pace, 2004; Mifsud, 2012; Mayo et al., 2008; Pace, 2007, 2009) have indicated that current trends in ESD in Malta tend to focus on environmental issues rather than address their causes in relation to social, cultural and economic situations. Indeed, Pace (1995) argued that it is the individual teacher's interest and concern about the current state of the environment that ensures the integration of environmental issues in daily teaching, rather than any EE policy adopted. This is of interest to this thesis because any ECEfS programmes are usually organised by head teachers and teachers who have personal interest in the issue, if at all. Consequently, ECEfS initiatives tend to be few and far between. This might explain why to date Malta does not have a formal national ESD policy and ECEfS programmes are practically non-existent.

Even though ESD in Malta has been given some importance, it was not given national priority, it was not coherently organised and it did not effectively offer the adequate opportunities for individuals to develop the necessary skills and capacity to deal with sustainability issues (Briguglio & Pace, 2004). Briguglio and Pace (2004) further noted that Malta is gradually building up an infrastructure aimed at supporting future ESD initiatives to a point where Malta will be able to adopt sustainability principles. Nevertheless, Mifsud (2004, 2012) and Ventura (1994) believed that achieving success with EE programmes in the Maltese education system has been difficult from the start for a number of reasons, including lack of



teacher preparation and resources; intense streaming; and selective examinations that exclude certain components within the curriculum which cannot be assessed by a written examination. Furthermore, Pace (2007) noted that the formal education sector in Malta has been the most resistant to change as proposed by ESD particularly because of the faithful reproduction of attitudes and values of society, formal educational institutions in education practice; lack of trained personnel in ESD, therefore, the methodologies adopted may not be suitable for their audiences; ESD initiatives introduced stem from the environmental crisis the community might be facing at the time and address the symptoms rather than the cause; information documents about environmental issues handed to the public are too long and technical for the lay person to understand and public consultation meetings regarding local environmental issues are held in places that are not socially sensitive to the participating audience. Mifsud (2012) attributed the cause of these issues to the geographical size of Malta, where promotion prospects are limited, making collaboration between individuals and sectors more difficult and increased the culture of competitive academic achievement. Research by Bezzina and Pace (2004), Mifsud (2012) and Pace (2009) has shown that many Maltese teachers still requested teaching resources for successful implementation of ESD in Malta because they felt under-trained and believed that resources for the effective implementation of ESD in Malta were difficult to produce, an attitude which undermines teachers' professional status.

Of interest to my thesis is the fact that the NMC (Ministry of Education, 1999) did not make direct reference to ESD, let alone ECEfS. Instead, it focused on ECCE as preparation for primary education and pointed out the importance of

academic achievement which should start in ECCE. Written from a DAP perspective, the NMC listed ages and stages of development (as proposed Piaget) and specifically stated that “The 3-7 year period , considered as the pre-conceptual phase, must be regarded as the formative period which precedes the one during which the school experience becomes more formal” (p. 49). The situation did not change much in recent years, especially for the field of ECEfS. Despite the curriculum advancements brought about by the NCF (Ministry of Education and Employment, 2012), where for example it moved away from DAP towards a socio-cultural approach to learning, it did not recognise the contribution of ECEfS because while it included ESD as an inter-curricular theme, it excluded ESD from the early years and therefore it excluded ECEfS.

Almost a decade and a half ago, Sterling (2001) argued that mainstream education favoured the economic dimension, and in so doing, it did not challenge the dominant economic paradigm and did not recognise people and nature as inter-dependent. He further suggested that these education systems were informed by fundamentally mechanistic worldviews that ignored sustainability issues and their impact on the well-being of people. Sterling (2001) contended that the reason why educational systems had barely responded to the challenge of re-orienting curricula towards sustainability might have been due to the insufficient clarification of changes in education that would be necessary for the goals of EE to be fulfilled. Almost a decade later, Sterling (2010) suggested that in order for ESD to reach the goal of re-orienting curricula towards sustainability, curriculum designers and teachers need to develop learning situations conducive to transformative learning experiences that are holistic, critical, appreciative, inclusive, systemic and creative.

Although Sterling (2001) did not make any reference to the Maltese education system, a lot of his arguments nevertheless apply. The NMC recognised the role of education in creating society's well-being and prosperity (Ministry of Education, 1999). However, the Maltese education system is based on academic achievement because it is built on the needs of the Maltese industry and deviates from the principles of ESD (Pace, 2007). Rather than recognising that people and nature are inter-dependent, the Maltese education system favours economic growth over sustainability, and attributes minor importance to the social, economic, and environmental dimensions of sustainability. As declared by Prof. Borg, the Maltese education system still "spoon-feeds" children ideas about what behaviours and knowledge are expected of them (Vella & Tedesco, 2015). Prof. Borg (Vella & Tedesco, 2015) and Claxton (2008) emphasised that an education system that spoon-feeds students creates passivity, uncritical thinking and recapitulation rather than independent minds. In line with Sterling's (2001) argument, this view of education is informed by mechanistic worldviews that are largely ignorant of the sustainability issues that are constantly and increasingly impacting on people's lives. If Sterling (2010) is correct, this will need to change fundamentally for ESD to reach the goal of re-orienting curricula towards sustainability; curriculum designers and teachers will need to develop learning situations conducive to transformative learning experiences that are holistic, critical, appreciative, inclusive, systemic and creative.

UNESCO (2014) suggested that ESD aims to transform education in such a way that it contributes effectively to re-orient society towards sustainability. A key premise of ESD is that apart from catering for academic achievement of individuals, educational systems worldwide teach individuals about the impact of human actions

on the environment, as well as helping children to find positive solutions to these issues. UNESCO (2014) specified that ESD needs to be relevant to the challenges the world is currently facing and it should also teach learners how to “develop the skills and attitudes to respond to such challenges and prosper, now and for future generations” (p. 21). For this reason, UNESCO (2014) suggested that ESD requires the re-orientation of educational systems and structures, as well as teaching and learning towards sustainability, rather than merely considering ESD as an extra subject within the existing educational system and curriculum. Therefore, applying UNESCO’s (2014) perspectives of ESD requires a shift in attitudes, values and skills to respond to the current challenges in the Maltese context. There needs to be an education system that challenges this dominant economic paradigm and moves away from an education that reproduces the existing social conditions.

## **2.10 Early Childhood Education and Education for Sustainable Development: Synthesising the Fields**

Davis and Elliott (2014) stated that the roots of ECEfS can be traced back to the early 1990s, when a group of early childhood practitioners and academics in the USA and Australia recognised the link between ECCE and environmental issues. As evidenced by Davis and Elliott (2014), at the time, there were growing environmental concerns, which led to the emergence of what was then known as “early childhood environmental education” (p.3), which over time became the field of ECEfS. This was also a time when there were shifts in early childhood paradigms, with the introduction of the UNCRC (UN, 1989), and the new sociology of childhood (NSC). I will discuss these in Sections 3.6, 3.6.1 and 3.7.

Talking about ECCE, UNESCO (2014) declared that “ESD is about securing

the future, in recognizing that our youngest children have the greatest stake as citizens in that future” (p. 69). However, despite advances in ESD, ECCE has not kept up with other education sectors in incorporating ESD into its curricula, and little attention has been paid to ECCE’s role in ESD (Davis, 2009; Elliott & Davis, 2009; Johansson, 2009; Pramling Samuelsson & Kaga, 2010; Tilbury, 2011).

### **2.10.1 Early childhood education for sustainability: A historical perspective.**

UNESCO (2014) reported four major events during the DESD that helped to increase recognition that ECCE had a key role to play in establishing the foundations for sustainability. These recent international events have also provided guidance to countries on the importance of the ECCE in addressing sustainability.

In 2005, the United Nations Economic Commission for Europe (UNECE) held a regional ESD strategy, in which it recognised ESD as a life-long process that begins in early childhood (UNECE, 2005). UNECE is also tracking the implementation of ECEfS within its Member States. It is worth noting that in a report of questionnaire produced by UNECE (UNECE, 2014), Malta has included ESD in its curriculum as “an intercurricular theme” (p. 1). In this report, Malta also stated that local environmental NGOs and the Department of Curriculum Management have organised seminars for teachers throughout the scholastic year; *EkoSkola* programme is adopted by schools for the implementation of ESD; the Department of Curriculum Management sponsors six support teachers to facilitate the process of ESD in schools in Malta and Gozo; and the Ministry of Sustainable Development, Environment and Climate Change collaborates with the Ministry of Education and Employment to consolidate ESD implementation in schools and

communities. However, ECEfS did not feature in any of the responses Malta provided to the UNECE (2014) questionnaire.

In 2007, The Role of Early Childhood Education for a Sustainable Society workshop, jointly organised by Gothenburg and Chalmers Universities in Sweden and the City of Gothenburg, brought together ECCE experts from 16 countries. It led to the first ever ESD international report, which focused on ECEfS, *The Contribution of Early Childhood Education to a Sustainable Society* (Pramling Samuelsson & Kaga, 2008). A second workshop, held in 2008, led to the publication of *The Gothenburg Recommendations on Education for Sustainable Development* (UNESCO, 2008). Its recommendations were fully adopted by UNESCO in 2009. UNESCO (2014) recognised that together, these two documents have provided impetus for ECEfS initiatives in ECCE in many countries. Davis (2010) noted that *The Gothenburg Recommendations on Education for Sustainable Development* was the first time ECCE was included in an international ESD document. It included specific recommendations for the integration of ESD in ECCE (UNESCO, 2008, pp. 25–32) and listed ECCE as “the starting point of lifelong learning within education for sustainability” (UNESCO, 2008, p. 26).

*The Gothenburg Recommendations on Education for Sustainable Development* document also recognised that there are children around the world who do not have access to ECCE in their area and recommended access to ECCE service as one of its priority areas. However, suggesting that the early years are “the starting point” (UNESCO, 2008, p. 26) for life-long learning in ESD is problematic, due to the use of the article “the.” The use of the article “the” implies that learning about sustainability only happens in ECCE, whereas the theories I discuss in Chapter 3

indicate that children construct their knowledge of issues in different contexts, and over time. Therefore, this document discounts the importance of different contexts that might be vital for children's learning about sustainability issues at different stages in their lives. Furthermore, there is a lot of potential for teaching and learning in ECCE but curricula are designed by authorities. This means that Governments might choose not to include environmental issues in the early years' curriculum, or include some while leaving out others.

In 2010, UNESCO organised the first ever World Conference on Early Childhood Care and Education (WCECCE). It raised awareness of ECCE as a human right and as important for child development; highlighted the global status, challenges and experiences of expanding quality ECCE; and ended with the adoption of the *Moscow Framework for Action and Cooperation: Harnessing the Wealth of Nations* (UNESCO, 2010). This framework recommended that "education for sustainable development [should be included] as a central part of quality ECCE" (UNESCO, 2010, p. 4).

In the same period, in 2010, the World Organization for Early Childhood Education (OMEP) organised the OMEP World Congress 2010, called Children – Citizens in a Challenged World (OMEP, 2010), in Sweden, which was followed by the OMEP document *Education for Sustainable Development in the Early Years* (Siraj-Blatchford, Smith, & Pramling Samuelson, 2010). This OMEP document highlighted the links between ECCE and sustainability. Davis and Elliott (2014) noted that this was the first time that ECEfS was promoted as a key theme at an international conference. At the OMEP World Assembly in 2013 (OMEP, 2013),

held in China, sustainability was profiled as a means of achieving high-quality early childhood services.

In 2014, SDSN Thematic Workgroup on Early Childhood Development, Education, and Transition to Work published a statement, *Young Children as a Basis for Sustainable Development* (SDSN, 2014), in which it stated that “Children are a common basis for all dimensions of sustainable development” (p. 1) and they have a right to live in a sustainable world. This document recognised the early years as a critical stage for human development, in terms of both neuro-scientific and economic evidence. For this reason, SDSN (2014) argued in favour of teaching children about sustainability in the early years. It also emphasised the need for a vision of multiple generations working together for social development in order to achieve sustainability. Therefore, this document recognised that different generations in society need to contribute toward achieving sustainability. This is important for my thesis because I too believe that different generations in society, including children, parents and educators, need to work together to achieve sustainability.

### **2.10.2 Emerging characteristics of early childhood education for sustainability.**

Davis (2008) stated that ECEfS acknowledges that early learning is important for shaping children’s environmental attitudes, knowledge and actions. Similarly, Pramling Samuelsson and Kaga (2010) and Davis (2010) believed that ECEfS can also help build a culture of sustainability by transforming curricula and school systems so they are aligned with ESD. ECEfS has been described as:

the enactment of transformative, empowering and participative education around sustainability issues, topics and experiences within early education contexts. ... ECEfS [needs] to support early learning communities to create ‘cultures of sustainability’ that build or transform thinking, practices and



relationships around sustainability. This is an approach that occurs ‘inside’ the centre, not imposed or mandated by external agents. (Davis, 2010, p. 28)

Davis (2010) insisted that the role of ECEfS is not to eliminate play and learning experiences that are characteristic of ECCE, with those exclusively focused on environmental and sustainability issues, but to use these characteristics as the building blocks to teach children about sustainability issues. In fact, Edwards and Cutter-Mackenzie (2011) noted that play-based and intentional teaching events can support acquisition of content knowledge associated with sustainability. As highlighted by UNESCO (2014), one of the prominent themes in ECEfS literature is the value of outdoor nature play and play-based pedagogy for sustainability because it contributes to the acquisition of social understanding and nature awareness by children from an early age.

Davis and Elliott (2014) confirmed that children as agents of change for sustainability are central to ECEfS. However, this does not mean that children are responsible for solving the environmental problems created by adults. In this thesis, I too believe that the approach to ECEfS:

is one of children working authentically in the exploration of topics and issues of interest to them. This means working alongside their teachers, families and communities in solving problems, seeking solutions and taking action to ‘make a difference’, mostly within their local context. (Davis & Elliott, 2014, pp. 1-2)

Young children need the tools and skills to be able to think critically and grasp concepts such as “what is sustainable” and “what is unsustainable”. According to UNESCO (2014), ECEfS pedagogies are seen as helping to further help children develop values; participate in democratic decision-making skills; and collaborative action-oriented learning in order to:

- build upon the everyday experience of children;
- provide curriculum integration and creativity;
- support intergenerational problem-solving and solution-seeking;
- promote intercultural understanding and recognition of interdependency;
- involve the wider community;
- support active citizenship in the early years;
- aid in the creation of lifelong cultures of sustainability. (UNESCO, 2014, p. 75)

Davis (2010, pp. 30-31) provided a useful structure for thinking about ECEfS, which is similar to education *in*, *about* and *for* the environment in other education sectors, where she described:

Education *in* the environment – Here the natural environment is used as a medium for learning and priority is given to outdoor settings and learning resources. It seeks to provide young children with experiences in the natural environment, for example, exploration of the outdoors, gardening, playing with mud, water, sand, etc.

Education *about* the environment - Here the emphasis is on learning how natural systems function to help children understand and appreciate the natural world and the interconnection between humans and nature. It provides scientific knowledge, such as learning about water conservation, composting, wormeries, etc.

Education *for* the environment – Here the socio-political aspect of education is included. It is concerned with creating social change and includes critical examination of existing practices such as the use of water, generation of waste from lunch boxes, followed by collective problem-solving and taking action to introduce resources and strategies to create change.

Davis (2010) explained that usually education *in* and *about* the environment are easily incorporated in ECCE, but this type of education is not enough to create the foundations for sustainable living because it fails to address the human-environment interactions that cause environmental sustainability issues. She argued for ECEfS that caters for education *for* the environment in order to create social change.

The field of ECEfS has not caught up with other sectors of education. Reasons for this late uptake include barriers such as: failure to recognise that early childhood has a significant role to play in ESD (Pramling Samuelsson & Kaga, 2008); the fact that ECEfS is fragmented within and between countries due to the variations in availability, accessibility and quality of programmes (UNESCO, 2014); lack of an agreed upon approach/framework for ESD, making sustainability not well understood by the early childhood sector (Davis, 2009); lack of capacity to incorporate ESD into teaching and caregiving activities in the early years by educators and primary caregivers (UNESCO, 2014); ECEfS has been the province of advocates and educators who see its relevance (Davis & Elliott, 2014); and lack of published research in the ECEfS field (Davis, 2009, 2010). Research by Elliott and Davis (2009) and Duhn (2012) also showed that the risk-avoidance and developmental practices in ECCE have led to resistance from teachers when it comes to addressing potentially challenging, complex topics, such as climate change and environmental sustainability. Moreover, the developmentalist perspective in ECCE failed to recognise that young children are capable of taking action for the environment if they are given the opportunities to do so (Davis, 2013; UNICEF, 2013). Elliott and Davis (2013) added that sometimes teachers find concepts of

sustainability hard to understand, making it even more challenging to include such concepts in their pedagogy.

Recently, Davis and Elliott (2014) acknowledged that research in ECEfS is growing and they published some good examples of international ECEfS research. Of special interest to my thesis is the fact that recent research in ECEfS tends to focus explicitly on the philosophical and pedagogical links between ECCE and ESD, “often advocating for an embedded and enacted culture of education *for* sustainability within early childhood education, rather than focusing mainly on investigating children’s knowledge *about* the environment or their engagement *in* the environment” (Davis & Elliott, 2014, p. 5). My study will contribute towards filling a gap on young children’s perceptions of environmental sustainability.

## **2.11 Conclusion**

This chapter critically examined the interconnection between education and environmental sustainability, particularly in early childhood. It showed that there are no agreed universal definitions of sustainability, environmental sustainability, and ESD. This chapter found that the majority of literature explored overlooks the influences of social and cultural factors in shaping individuals’ relationship with the natural environment overtime. Overall, education has been able to create a connection with the environment instead of enabling individuals to question the causes of environmental sustainability issues and ways to deal with them. Consequently, multiple and complex problems and priorities that confront society present education with many challenges that are not easy to solve.

### **CHAPTER 3: YOUNG CHILDREN AND ENVIRONMENTAL SUSTAINABILITY**

This chapter seeks to explore and provide a contextual and conceptual background of the theories and research linked to the main concepts of this thesis – young children and environmental sustainability. This chapter begins by exploring these different theoretical perspectives common to ECCE and discusses how they are relevant to my study, including theory of cognitive development, socio-cultural theories, bio-ecological theory of human development, and theories of inter-generational influence.

Together, these theories acknowledge the holistic nature of early childhood construction of knowledge as a process defined by social and cultural beliefs, practices and experiences. Biological and environmental factors, and context, that are present in each child's life also affect knowledge construction. This makes my thesis sensitive to how the notion of environmental sustainability is socially and culturally constructed within each child's context. The theoretical assumptions underpinning my study guided my study design. I argue that together these theories represent the appropriate "lenses" which helped me to understand how children develop their perceptions of environmental sustainability.

Another aim of this chapter is to explore the literature that has provided the direction for my study. This chapter attempts to provide a conceptualisation of children and childhood in research by looking at the NSC, and the related policy initiatives, such as the UNCRC (UN, 1989). Finally, I examine environmental research with young children and provide a critique of ways of incorporating young children in research.

### **3.1 Dominance of Maturational Theories in Early Childhood Education**

The cognitive development theories of Jean Piaget (Piaget, 1952) set the scene in the era of constructivism and challenged the behaviourist approach, which viewed children as passive recipients of knowledge, by proposing a constructivist theory that valued discovery learning methods through practical activities. Piaget's theory of cognitive development (Piaget, 1952) with its accompanying universal maturational framework featuring discrete stages of child development aligned with particular age groups, provided the baseline for much of the research on young children and learning, and dominated much of the literature in education up until the mid-1980s.

As discussed in Chapter 1, children aged between 3 and 7 years are the focus of my thesis. As illustrated in Piaget's theory (Piaget, 1952), children in this age group are in the pre-operational stage of cognitive development. At this stage children can view only one aspect of a phenomenon at a time. Therefore, according to Piaget's theory, at this age, children are unable to generalise from one experience to a similar one. Inherent within this age/stage-based approach is the belief that children's knowledge is qualitatively different from that of adults. Consequently, a child in the pre-operational stage is incapable of understanding complex issues, such as environmental sustainability, that are characteristic of more advanced stages of development. By emphasising young children's cognitive immaturity, this Piagetian perspective of development is dependent upon maturational processes, with socio-cultural factors considered to be of secondary importance.

Rogoff (1990) declared that the characterisation of cognitive development happens through ages and stages, and the concept of the child actively constructing

knowledge, are considered to be Piaget's greatest contribution to education and research. Although Piaget did not write extensively about the educational implications of his theory, his ideas have informed much of educational policy, curricula, and practices in ECCE, which are influenced by DAP (Bredekamp, 1987; Bredekamp & Copple, 1997; Copple & Bredekamp, 2009). DAP is explained by Woodhead (2006) as learning that happens in terms of universal stages of development, with emphasis on children's self-directed play, exploration and discovery, and that emphasises curriculum planning based on children's emerging interests and needs, where the role of the teachers is viewed as someone who provides guidance and support. From an ECCE perspective, Piaget's theory constructs children as individuals who need to find knowledge for themselves, and the role of the adult is to provide the right learning resources and environments for children to learn.

### **3.2 Challenges to Maturational Approaches**

Piaget is credited for being the first researcher to adopt a child-centred approach to qualitative research, with young children as active participants in their own learning. For a long time, his theory of cognitive development remained unchallenged. However, research conducted from the mid-1980s onwards began to question the traditional assumptions within Piaget's theory. These challenges helped to generate new and alternative theories of children's learning. In summary, developmental and maturational theories underestimate children's competences and can be read as portraying children as needy, psychologically and emotionally vulnerable, dependent, and not yet competent individuals.

Trevarthen (1998) agreed that Piaget, "made a significant advance in

psychological theory ... He did not, however, understand the power of interpersonal or intersubjective processes by which cooperative awareness is achieved” (p. 88).

Also, Corsaro (1985) noted that Piaget concentrated almost exclusively on the inner cognitive developmental processes of the child, and he rarely identified features of the child’s cultural world. Piaget was interested in how children acquire knowledge related to their stage of development, to the point where he placed too much emphasis on the child as a lone constructor of knowledge. Piaget almost regarded adult intervention as an imposition and a threat to the child’s constructive process. Donaldson (1978) criticised Piaget’s experiments for involving assumptions about children’s interpretation of given tasks. Donaldson, Grieve, and Pratt (1983) argued that Piaget’s focus on the individual child and universal development meant that children who deviate from the norm, for example because of different developmental routes or different cultural experiences that do not match the dominant Western or middle class culture, are often described as deficient according to his theory.

Challenges to age/stage-based theories and the emergence of the socio-constructivist perspective within the field of education have led to an interest by researchers in understanding the ways in which children actively participate in socio-cultural contexts (Rogoff, 2003). Woodhead (2006) claimed that critiques of maturational theories have led developmental researchers to value the significance of the social and cultural contexts of early development, particularly by drawing on Vygotsky’s social constructivist theory.

Since young children are the focus of my study, it was important to look at Piaget’s theory and how he studied children as individuals. Piaget focused on the individual child’s construction of knowledge occurring as the child passes through



identifiable developmental stages. This is important for my thesis because my construction of childhood includes a developmental stage and so while aspects of Piagetian theory are relevant for my study it remains a partial explanation. As a teacher and a researcher, I acknowledge that there is a developmental stage in learning which is different for every individual child, but I also view children as active agents in their own learning and development. I believe that children learn in different contexts while interacting with other people in their community and for the purpose of my study, the focus is on the learning about environmental sustainability that occurs in the social contexts of the home and the school. In coming to these views, I have been influenced by Piaget's theory as well as by socio-cultural theory, which will be discussed next.

### **3.3 The Child in Society: A Socio-cultural Perspective**

The interactive reciprocal nature of human relationships underpins social constructivism. A social constructivist theory considers the quality and nature of the children's context, their age, culture and life experiences before drawing conclusions on their development. Socio-cultural theories position children as active agents in their development and as contributors to their experiences. Socio-cultural theory is often associated with Vygotsky (Cole & Wertsch, 1996; Rogoff, 1990; Smith, 2002; Wertsch, 1985), who developed a theoretical perspective, which connected social and mental processes in order to describe children's cognitive development as a social process.

For the purposes of my study, the focus was on young children's construction of environmental sustainability that occurred in their social contexts, particularly at home and school. Therefore, Vygotsky was of particular importance. By adopting a

child-centred approach to his theory, Vygotsky (1978) considered the biological aspect of development as interactive with the culture and context of the child's community. Vygotsky (1978) regarded children as active in their development and was interested in learning as a collective cultural activity in a community.

From a Vygotskian perspective, development is inextricably linked and mediated action via the use of symbolic tools and culturally significant signs and symbols, or cultural tools, which are central to all knowledge and practice. Vygotsky (1978) described cultural tools as providing “the basics for the subsequent development of a variety of highly complex internal processes in children's thinking” (p. 90). Rogoff (1990) described cultural tools as including a comprehensive range of ideas and objectives children can use to achieve their goals, such as language, calculators, computers, books, numbers, and letters. From a socio-cultural perspective, the family and the school are recognised as places where children learn the necessary cultural tools. In this thesis, interactions with family, with other members at school, and with objects, would provide children with the cultural tools necessary to develop their thoughts about environmental sustainability.

Corsaro (1992) explained that from a Vygotskian perspective, children develop through participation in a social and cultural matrix, made up of the social relationships, their interconnections, and the interactions between these social relationships and the children. Specifically, learning and development happen when children, through the interactive guidance of adults (or more capable peers), appropriate these cultural practices and artefacts, and thus progress and develop in ways that are consistent with the culture of their communities (Ellis & Rogoff, 1982; Wertsch, 1985). From this perspective, development is considered to be a process of

socialisation in the cultural practices of the community, where its members learn via engagement in cultural activities and use of cultural tools (Rogoff, 2003).

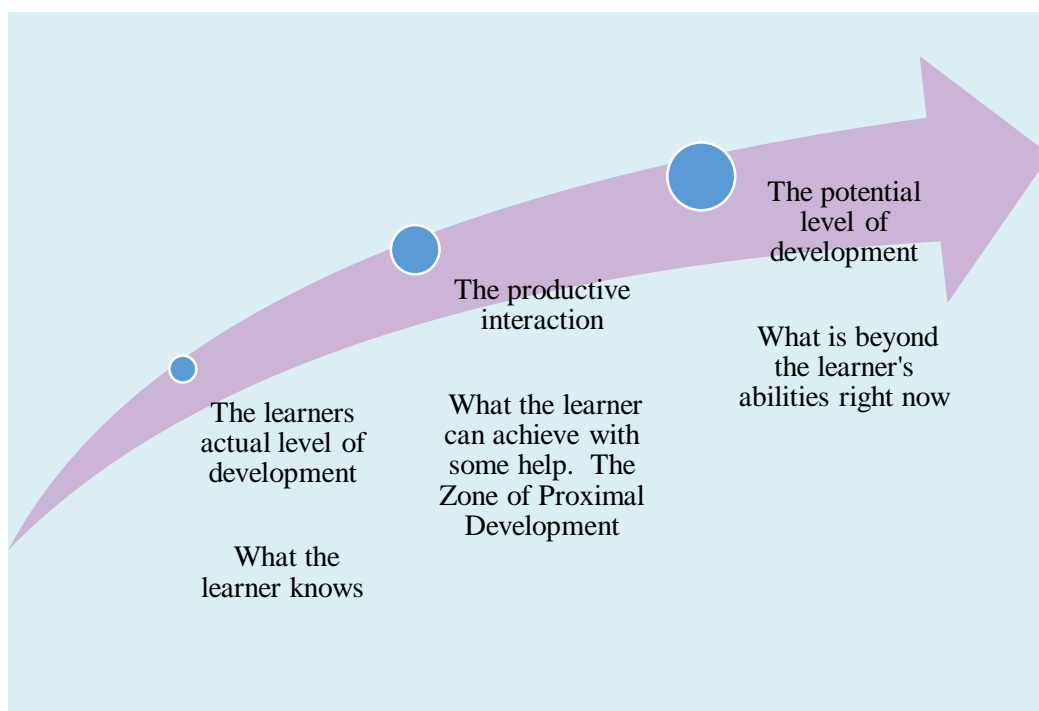
Language and communication were also identified by Vygotsky (1978) as cultural tools essential for participation in social and cultural contexts, and were considered to be at the core of intellectual and personal development. Vygotsky believed that language carried meaning, which must be interpreted by the child. Fox (2001) criticised Vygotsky's emphasis on the importance of language in the development of learning, and pointed out that if thought could not exist without language then a child is devoid of thought until s/he is able to speak. However, Vygotsky (1978) acknowledged the immediate sensations and perceptions in his conceptualisation of the role of language for mental development, but he did not dwell on them. For Vygotsky, sensation and perception were part of language-mediated thinking, which he referred to as higher mental ability, and insisted that this is what distinguishes humans from animals. For this reason, he focused on speech units with meanings in order to reflect his awareness of humans as social beings living in a society.

### **3.3.1 The zone of proximal development.**

Within the socio-constructivist approach adopted in this thesis, children are integrated into their community via social interaction and relationships with more experienced peers and adults, such as parents, teachers, older siblings and other members within their community. Members of the community offer appropriate assistance for children to acquire the cultural tools of their community, for example, assisting children to co-construct meanings of environmental sustainability with others in their social world. This interactive nature of development forms a key

principle of the socio-cultural perspective. Within this context, the child influences and is influenced by the views of others within the community. Subsequently, in the case of this thesis, knowledge of environmental sustainability is culturally mediated. Therefore, learning and development are the result of construction of knowledge through shared relationships in a community within a hypothetical and dynamic region where learning takes place, referred to by Vygotsky (1978) as the “zone of proximal development” (p. 86).

Vygotsky (1978) noted that the zone of proximal development (ZPD) is essentially the range of potential learning that occurs within a given social and cultural environment, where through collaboration with adults or more experienced peers, the child develops her/his potential. However, children’s potential must be determined by a knowledgeable adult, such as a parent or a teacher, who will plan activities according to the child’s abilities and make sure that goals within the ZPD are realistic and achievable. By considering the teacher as a facilitator who scaffolds and develops children’s learning, Vygotsky afforded the teacher a central role in children’s learning. In Figure 3.1 I demonstrate my interpretation of how learning and development happen in the ZPD.



**Figure 3.1. The zone of proximal development.**

Source: Author.

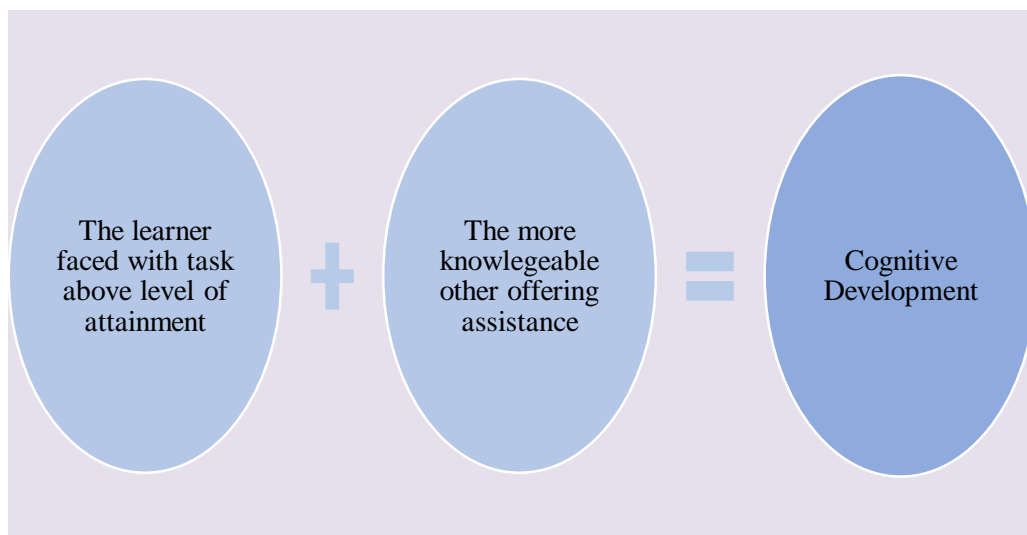
Central to Vygotsky's theoretical ideas is the concept of internalisation as part of the human mind. This is where children learn and develop as a result of participation in the social world. Internalisation is critical to development through the ZPD. This process of development is a continual, dynamic process where the social world and the private, inner world of the children come together. The co-construction and reconstruction of knowledge, transformed through collective active participation of the members, for example, the shared meanings of environmental sustainability that result from the interaction between teacher and children, helps children negotiate meaning and ensures the cultural and social practices of the community keep evolving.

In summary, a socio-constructivist perspective views learning and development as a process of individual development that occurs through social interaction and participation in cultural practices and activities. Learning and

development are specific to the children's culture and community, and one cannot assess them with the values and measures of another community. This is an important consideration for my thesis because it studies children within their culture and within their community in Malta. As a Maltese female, I am familiar with the culture and the language of this community. This provides me with the opportunity to study children in their community, using local values, to help me understand their perceptions of environmental sustainability and the contextual influences upon them.

### **3.3.2 Developments of socio-cultural approaches.**

Vygotsky's theories have been open to many interpretations. Post-Vygotskians have helped to develop his theory further. One of these developments includes the concept of scaffolding that describes the types of interaction and learning process that occur within the ZPD. Scaffolding, as described by Wood, Bruner, and Ross (1976), is a support system where the adult helps children to successfully achieve tasks that would otherwise be too difficult for them to achieve on their own. As soon as the child masters the task, the adult establishes an active withdrawal to initiate a takeover by the child, which is crucial for the development of self-regulation by the learner (Berk & Winsler, 1995). As I explain in my interpretation in Figure 3.2, the ultimate goal of scaffolding is to develop an independent, self-regulated learner through joint problem-solving and intersubjectivity, where the novice and the expert establish mutual understanding of abilities, interests, goals, motivations and dispositions (Wood & Attfield, 2005).



**Figure 3.2. Scaffolded interaction.**

Source: Author.

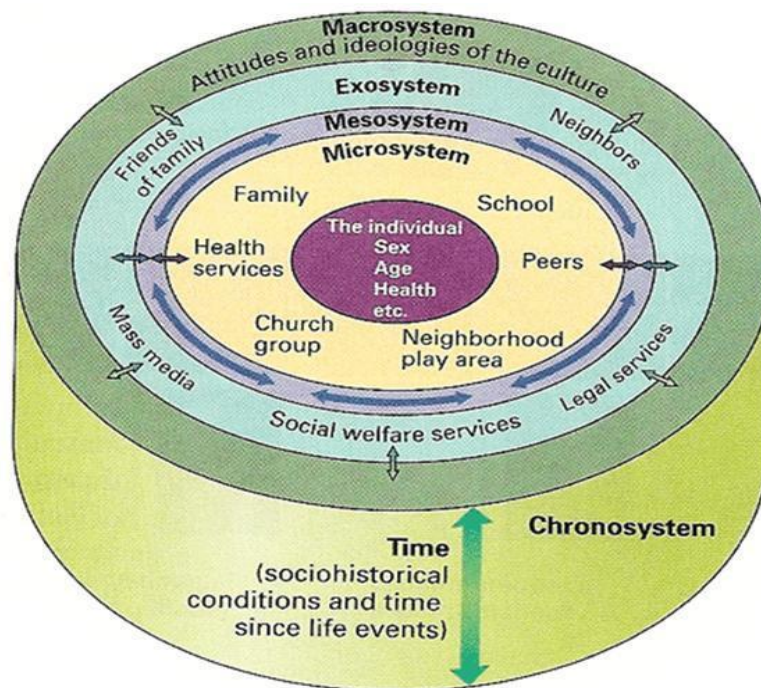
A major criticism of scaffolding and the ZPD is the expert role apparently afforded to the teacher, which might be interpreted to the point where the child is almost seen as a passive recipient of knowledge. Contrary to this criticism, Rogoff (1990) developed the concept of scaffolding and ZPD with the term “guided participation” (p. 14), emphasising shared experiences between members of the community, rather than instruction. Guided participation assumes that children and adults are partners in the learning process. Rogoff (2003) explained that guided participation takes place in a community, in which children’s learning needs are diverse and must be understood within particular cultural and social contexts, within any given community, not just understood as those *of* a community. Central to this thesis is the concept of a community. A definition of a community in this thesis is that advised by Rogoff (2003), and therefore, one that includes “groups of people who have some common and continuing organization, values, understanding, history and practices” (p. 80).

In summary, the common theme in these socio-cultural theories relevant to this thesis is participation in the activities of a community. Consequently, shared understanding among community members is brought about by notions of transformation of individuals working in the ZPD, in social and family contexts. These notions of participation in social and family contexts intersect with the bio-ecological theory of human development, which also explains how transformation happens, not just at the individual level but also at societal level.

### **3.4 The Significance of Context: A Bio-ecological Perspective**

Ecological theories focus on human development that takes place in different contexts. Bronfenbrenner's (1979) concept of a child developing in different social contexts of family, neighbourhood, culture and society also influenced the design of my study. His theory is based on Lewin's (1951) classical formula where behaviour emanates from the individuals and their surroundings. Therefore, Bronfenbrenner's approach also aligns with the constructivist approaches of Vygostky (1978). Following the criticism of the original ecological model (Bronfenbrenner, 1979), Bronfenbrenner developed the bio-ecological model (Santrock, MacKenzie-Rivers, Leung & Malcomson, 2003), as indicated in Figure 3.3. The bio-ecological model was then developed further by Bronfenbrenner and Morris (2006).





**Figure 3.3. Bronfenbrenner's bio-ecological model of human development.**  
Source: Santrock et al. (2003, p. 41).

### 3.4.1 The PPCT model.

The bio-ecological model consists of four principal components and the relationships between them, otherwise known as the process–person–context–time (PPCT) model. The components making up this model are considered by Bronfenbrenner and Morris (2006) as important components of human development. These are described below.

#### *Process*

Process (both proximal and distal) constitutes the core of the PPCT model and encompasses particular forms of interaction between the child and the other persons, objects and symbols in her/his immediate surroundings. *Proximal processes* are described by Bronfenbrenner and Morris (2006) as the “primary engines of development” (p. 798). Examples of proximal processes related to my thesis include a parent showing a child how to recycle, children helping each other to reduce waste

and to learn new skills such as composting. Bronfenbrenner and Morris (2006) explained that proximal processes operate over time and depend on the activity of the developing person. They further explained that the power of such processes to influence development varies as a function of the characteristics of the developing *person*, of the immediate and more remote environmental *contexts*, and the *time* periods, in which the proximal processes take place. Bronfenbrenner and Morris (2006) suggested that for development to take place, these proximal processes need to occur on a fairly regular basis, over an extended period of time, and activities must not be interrupted as they become more complex. These developmentally effective proximal processes are bi-directional, meaning that the proximal processes can influence the child's development but can also be influenced by the child, and can involve interactions with people, objects and symbols. Proximal processes link the child's everyday activities with more competent members of the community and more distal environments.

*Distal processes*, as described by Bronfenbrenner and Morris (2006), include the family's ability to support a child's development. Example of distal processes related to this thesis include the family supporting the child to develop perceptions of environmental sustainability, and the parents enabling the child to interact in sustainability practices taking place within the wider community. While proximal processes have a direct influence on child development, distal processes may have only an indirect influence on child development.

### *Person*

Bio-psychological characteristics of a *person* influence child development and can influence proximal processes, either directly or indirectly. Bronfenbrenner

and Morris (2006, pp. 795–796) listed three types of person characteristics that are influential in shaping the future development of an individual, through their ability to affect the direction and power of proximal processes, and development throughout a person's life. The characteristics of a person are indeed the product and the producer of development. These are:

*Dispositions*, which can set proximal processes in motion in a particular developmental domain and continue to sustain their operation – e.g. the family's ability to sustain a particular behaviour that would contribute towards solving environmental problems.

Bio-ecological *resources* of: ability, experience, knowledge and skills that are required for the effective functioning of proximal processes at a given stage of development – e.g. the child's ability to understand an environmental issue and the child's interest in environmental issues.

*Demand* characteristics, which can either invite or discourage reactions from the social environment that can foster or disrupt the operation of proximal processes – e.g. the laws or local initiatives, which can either encourage or hinder people from taking action to tackle environmental issues.

Bronfenbrenner and Morris (2006) believed that these characteristics are incorporated into the definition of the *microsystem* as characteristics of parents, relatives, close friends, teachers or others who participate in the life of the developing child on a regular basis and over extended periods of time.

Bronfenbrenner and Morris (2006) explained that the characteristics of the person appear twice in the bio-ecological model: first as one of the four PPCT elements influencing the form, power, content and direction of the proximal

processes; and again as developmental outcomes, i.e. qualities of the developing person that emerge at a later point in time because of the joint, interactive, mutually reinforcing effects of the four principle, antecedent components of the model.

### *Context*

Bronfenbrenner (1979), Bronfenbrenner (2005), and Bronfenbrenner and Morris (2006) described the *context* as referring to the environment the child constantly interacts with, and in which the child's competences and character are shaped by. Examples of this include the family, child-care arrangements, schools, peer groups and neighbourhoods. Context in child development is also characterised by a series of hierarchical systems, starting from the most proximal to the most distal. As indicated in Figure 3.3, context constitutes four distinct concentric systems:

*Microsystem* has the most immediate and earliest influence on the child. Examples of microsystems include the family, playmates, school and the neighbourhood. The relationships in the microsystem are bi-directional, meaning that the child is influenced by what goes on in the microsystem, and influences what goes on in the microsystem as well.

*Mesosystem* contains the connections between two or more systems, essentially different microsystems. Two examples of mesosystems include the child's home and school. The influences here are also bi-directional and are mediated between the child and the people who interact with the child in these different contexts. Examples of people in the mesosystem include parents and teachers.

*Exosystem* contains microsystems and mesosystems. It includes the social systems in which the child does not participate but that nonetheless impact the well-being of all those who come into contact with the child. Examples of exosystems include the policies and decisions that affect the child although the child has little or no role in establishing them.

*Macrosystem* is the “societal blueprint for a particular culture or subculture” (Bronfenbrenner, 2005, p. 81). It includes the culture of the community the child lives in. It influences all layers of the ecosystem and includes cultural characteristics, political or economic disruption, all of which can solely or collectively shape child development.

#### *Time*

Time, or *chronosystem*, encompasses the specific historical context in which people and processes are located. Changes over time can take place on a frequent basis in the child’s life, or be one-off changes, such as the introduction of technology. Bronfenbrenner and Morris (2006, p. 796) stated that time has a prominent place in human development and occurs at three successive levels of the model within the chronosystem:

- *Microtime* refers to continuity versus discontinuity in ongoing, regular episodes of proximal process.
- *Mesotime* is the periodicity of these episodes across broader time intervals, such as days and weeks.
- *Macrotime* focuses on the changing expectations and events in society at large, both within and across generations, as they affect and are affected by, processes and outcomes of human development over the life course.

In summary, the PPCT model (Bronfenbrenner & Morris, 2006) emphasises the complex interconnectedness and interdependence of human relationships in different contexts, including inter-personal and intra-personal factors that influence the child's daily life, as well as the lives of schools, teachers and students. This extends over the life-time of the child, across successive generations, and over time. Therefore, different contexts are critical to an understanding of young children's meaning-making of environmental sustainability and how this concept is mediated within these contexts.

A bio-ecological perspective is in line with the focus of my thesis on how young children perceive environmental sustainability in different contexts, such as in the family and at school. In the literature, there are various definitions of what constitutes a family, and going over them is beyond the scope of this thesis. However, for the purpose of this thesis it is worth clarifying that I conducted my study in Malta, with Maltese participants, who lived in a family made up of a mother, a father and children. Therefore, in my thesis, a family is understood as consisting of two parents (a mother and a father) and their children. The role of the adult in early childhood settings is also significant in this theory. Therefore, parents and teachers serve as powerful mediators of children's learning and development by intentionally or unintentionally facilitating or hindering access to resources.

### **3.5 Inter-generational Influences: Environmental Learning in the Family**

Family and school systems are dynamic and involve a multitude of interactions between different members, which in turn help to reinforce or change the roles and norms of the community. Taking a constructivist perspective in this thesis,

I see the role of young children, their family, and the social context as interactively shaping child development, as well as family and school functioning. I see young children as active agents in their own development. Furthermore, I believe that children have the potential to influence their social environments through social interactions. For this reason, in my study I also explore the role that families and schools play in young children's perceptions of environmental sustainability and the potential influence that young children can have on their parents' and teachers' perceptions of environmental sustainability. This necessitates an understanding of inter-generational learning and influences, as well as the transfer of knowledge of environmental sustainability from school to home and *vice versa*, via the children.

Inter-generational influence has been described by Istead and Shapiro (2014) as "learning that exists or occurs between two or more generations ... this form of learning might enhance and further the goals of environmental education and education for sustainability" (p. 115). Inter-generational learning has been defined by the European Map of Intergenerational Learning (n.d.) as the way people of different ages can learn together and from each other and which enriches the thoughts, feelings, experiences and information of both generations.

Theories of inter-generational influence operate on the premise that the global issues society is currently facing require immediate action, and parents are in a better position than their children to create this change (Sutherland & Ham, 1992; Uzzell, 1999). Istead and Shapiro (2014) stated that the majority of inter-generational influence research has attempted to build understanding of knowledge transfer from adult-to-child, where the adult is considered to be the primary knowledge-holder. For this reason, inter-generational influence has been considered from a

unidirectional point of view, whereby most educational programmes, even in EE (Ballantyne, Connell, & Fien, 1998b; Ballantyne, Fien, & Packer, 2001b, 2001c), have focused on how adults, such as parents, can influence the knowledge, beliefs and actions of children rather than the ways in which children can influence family members and their community. In different sectors of education, adult-to-child inter-generational influence research that has explored the inter-generational learning between children and their grandparents (e.g. Liu & Kaplan, 2006; Newman, 1980; Strom & Strom, 1995); and mother-to-child inter-generational influence relationships (e.g. Bus & van Ijzendoorn, 1988) has yielded positive learning advantages for children. Furthermore, research by Meeusen (2014) showed that parents (both mother and father) can act as role models for their children's environmental learning by behaving in an environmentally-conscious way, e.g. by talking about environmental issues with their children and by providing an environmentally friendly home environment.

Human communication is not unidirectional (Uzzell, 1999), and adults are not the sole focus of knowledge and influence in the family. While not particularly focusing on ECCE, child-to-adult inter-generational influence is an effective way to reach the parents and achieve the desired results sooner rather than later (Duvall & Zint, 2007; Vaughan, Gack, Soloranzano, & Ray, 2003). In fact, social science research has recognised the value of the child-to-adult learning relationship which has given rise to the developing status of children as a source of new knowledge, even in environmental research (Ballantyne et al., 1998a, 1998b; Ballantyne et al., 2000, 2001a, 2001b, 2001c; Duvall & Zint, 2007; Istead & Shapiro, 2014; Sutherland & Ham, 1992; Uzzell, 1994, 1999; Vaughn et al. 2003) and demonstrated that



children are capable of acting as catalyst of environmental change among their parents and community members (Uzzell, 1994).

As demonstrated by Ballantyne et al. (1998b), children too can influence their parents and other adults. Ballantyne, Connell, and Fien (2006) suggested that education has the potential to educate adults via children through inter-generational influence on their family and the community at large. Research has shown that EE programmes that are specifically designed to foster the influential potential of children have often embraced the vision that children will eventually transfer some of what they've learned during the programme to their parents. Sutherland and Ham's (1992) study with sixth grade children in Costa Rica is considered to be the foundational work for child-to-parent influence research in EE. Sutherland and Ham (1992) studied the transfer of environmental information and ideology among Costa Rican children and their parents. They found that although children may pass on environmental information and ideologies to parents, such transfer of knowledge is often unreliable and vague. Later, Vaughan et al. (2003) examined the effects of a conservation programme on inter-generational learning in a Costa Rican village and found that third and fourth grade children had the potential to influence their parents' environmental knowledge and attitudes.

Ballantyne et al. (2001b) found that Australian children, aged between 9 and 17 years, shared environmental attitudes and learning with their parents, which resulted in positive environmental behaviour change in their homes. Ballantyne et al. (2001b) suggested that focusing on local environmental problems encouraged a sense of ownership and enthusiasm in the children, resulting in more community action. They concluded that "Even young children can influence everyday household

practices such as walking or riding a bike to school, taking shorter showers, turning off taps and lights, and purchasing environmentally friendly cleaning products” (Ballantyne et al., 2001b, p. 14). Rickinson (2002) asserted that the literature shows that by participating in EE activities, children can influence the environmental attitudes and/or behaviours of their parents. However, Rickinson (2002) warned that such influences are not the result of an automatic process but can be facilitated by programmes that are enjoyable for children (such as tasks which can involve parents and deal with real local issues) in addition to children and parents with an interest in the environment and good communication patterns between them.

In the early years, children too can have a potential impact on what goes on in their family in terms of environmental behaviour. Although research in inter-generational influences in ECEfS is limited, it has revealed the inter-generational learning potential of sustainability programmes in the early years for children and their community. For example, a study conducted by Davis, Rowntree, Gibson, Pratt, and Eglington (2005) in an Australian Kindergarten setting showed that the children’s parents and teachers learned new ways of thinking and acting about water and energy conservation and the use of paper and cleaning products following a sustainable planet project. Another study by Davis, Miller, Boyd, and Gibson (2008) reported that the Kindergarten water education programme influenced the families’ household practices. Similarly, Stuhmcke (2012), who also worked on an environmental programme with Australian children in Kindergarten, aged between 3½ to 5 years of age, found that they influenced their families and local community to change their shopping practices.

Duvall and Zint (2007) reviewed and synthesised the results from seven studies that sought to investigate how to design EE programmes that would encourage children to influence the environmental knowledge, attitudes, and behaviours of adults. At the end of their study, Duvall and Zint (2007, pp. 21–22) identified several factors that could lead to the success of inter-generational knowledge transfer, including: children’s perceived status within the family; the school’s environmental information within the community; parental involvement in children’s activities; community involvement in school activities; hands-on and action-oriented activities for children and parents; adequate time for in-depth exploration of issues; focus on local issues; and enthusiastic teachers. Duval and Zint (2007) concluded that further investigation into how children can act as catalysts for the promotion of environmental knowledge, attitudes, and changed behaviours in their parents and throughout their communities is needed. Moreover, Istead and Shapiro (2014) noted that to date, research that explores family learning environments using observational data at home and observations of family dynamics involved in inter-generational environmental learning is scant. This is even more so in the early years as has been highlighted by Davis (2009), who reported that research into sustainability in the early years in family settings is limited.

### **3.6 Conceptualising Children**

Children are the main focus of my study, and therefore, the concept of childhood merits some exploration. The way children are treated by adults is influenced by adults’ perceptions of childhood (Christensen & Prout, 2005). Similarly, perceptions of childhood influence policy and practice in ECCE

(Woodhead, 2006), and the way research with children is conducted (Christensen & James, 2008).

There are several distinct, but overlapping perspectives that influence our image of the child. In line with Article 1 of the UNCRC (UN, 1989), in this thesis, a child is considered to be any person under age 18, unless otherwise stated by national laws. Malta ratified the UNCRC in 1990. In 2003, a legal framework has established the Commissioner for Children Act and thereafter a Commissioner for Children was appointed (Office of the Commissioner for Children, 2013). In this thesis, I also recognise a child as an individual who has the right to an opinion and who also has a right for her/his voice and wishes to be heard, particularly in matters that affect her/him. My personal stance is indeed in line with Article 12 of the UNCRC (UN, 1989), which gave children the right to voice their opinions about matters and procedures that might affect them; Article 13 (UN, 1989), which gave the children the right to freedom of expression; Article 28, which gave them a right to an education; and Article 29 (UN, 1989), which pointed out that education should aim at developing the children's respect for the natural environment.

Until 2005, the original UNCRC document did not include early childhood specifically in the document. In 2005, it was remedied to include early childhood and it also included a set of recommendations found in *General comment No. 7 (2005): Implementing child rights in early childhood* (UN, 2006). Woodhead (2006) argued that this document has brought a shift in policies in early childhood worldwide, as it acknowledged and valued young children's universal rights. Lundy (2007) argued that by acknowledging the rights of young children to express their

ideas, this document gave them the right to have their views valued in accordance to their age and maturity.

Woodhead (2006) argued that the “universal perception of childhood” adopted by UNCRC, however, has been criticised too, particularly for taking a “distinctively Western liberal and individualistic discourse” of childhood (p. 25). Despite this criticism, the UNCRC has brought about new ways of conceptualising and acknowledging children’s competence. The UNCRC introduced the challenge for researchers to find an effective way to elicit children’s voices. It has created a new paradigm shift in ECCE research known as the “new sociology of childhood” (NSC) (see Section 3.7) (Cannella, 1999; Gallacher & Gallagher, 2008; Kehily, 2009; Prout, 2005; Woodhead, 2005), which challenges the universal definition of a child as provided in the UNCRC.

### **3.6.1 Conceptualising childhood.**

As a concept, childhood has been widely used historically (James, Jenks & Prout, 1998). Yet, as a social group, children have “remained in silence” for a long time (James & Prout, 1997, p. 7). Until recently, sociology has paid relatively little attention to children and childhood (Corsaro, 2005). The NSC provided new ways of conceptualising children and investigated how the concepts of the child and childhood are socially and culturally constructed and contested (James & Prout, 1997; James, Jenks & Prout, 1998; Jenks, 1996; Pufall & Unsworth, 2004). Corsaro (2005) suggested that the NSC provided explanations of children’s potential away from the stages and age categories. This perspective stemmed from a social constructionist view of childhood that, “the child is not a natural category and what a child is and how childhood is lived is structured by adult norms, aims and culture”

(Matthews, 2007, p. 325). Rinaldi (2005) even argued that childhood does not really exist but is socially, politically and historically constructed by society. Another perspective of childhood is offered by Walkerdine (2004), who argued that childhood is influenced by time and place, and for this reason approaches to the study of childhood and child development need to accommodate the shifts in understandings of childhood according to time and place too. Therefore, childhood is not a universal concept. There is not a universal definition of childhood, but there are different forms of childhood (Prout, 2005), that are contextually specific (James & Prout, 1997; James et al., 1998; Woodhead, 2005).

Different definitions of childhood afford children different experiences in different parts of the world and across cultures. Cultural values and contexts within which children are raised determine the fluid definition of childhood. There is a difference in the understanding of childhood between the Western perceptions of childhood and the perceptions of childhood in the developing world. Okoli (2009) showed that in some parts of the developing world, children are often considered as economically valuable for their families. On the contrary, Woodhead (2005) argued that the dominant construction of childhood in the developed world is of childhood being a time of innocence, education, play and economic dependence. It has been argued by Prout and James (1997) that the dominant construction of childhood in the developed world portrays an understanding of children as having a lack of competence that, “still retains a powerful hold on social, political, cultural and economic agendas” (p. xiv).

An alternative discourse of childhood influencing how childhood is understood emerged from the reconceptualist movement in ECCE (Cannella, 1997,

2005; Dahlberg et al., 2007; Dunne, 2006; Hultqvist & Dahlberg, 2001). The reconceptualist movement challenged the dominant Western models of developmental psychology by offering alternative perspectives. Reconceptualists believe that developmental theories are biased in their Western approach to child development and should be critically examined across cultures. For example, this movement positioned the West as the Minority World and argued in favour of multiple models of child development that were supportive of distinct cultural traditions that were not bound by maturational and psychological models of child development. Tzuo, Yang, and Wright (2011) noted that reconceptualists look at child development as incorporating “a holistic view of children’s developmental needs that encompasses socio-cultural as well as biological factors” (p. 555). From this perspective, a teacher interacts with each child individually and caters for her/his unique needs, rather than simply using standardised teaching practices (Tzuo et al., 2011).

Since constructs of childhood have been constantly evolving, I argue that definitions of childhood are socially constructed and fluid because society constantly negotiates its definitions of what childhood is and what it means to be a child. For this reason, I also believe that these definitions and redefinitions of childhood are both temporal – influenced by time, and contextual – influenced by the context and by the dynamics and interactions of individuals within that context.

### **3.7 The New Sociology of Childhood and Research**

The NSC emerged during the 1980s and 1990s from sociology and social anthropology (Prout, 2011; Tisdall & Punch, 2012). Back then, some scholars believed that the study of children and childhood were not taken seriously

(Matthews, 2007; Prout, 2011). Consequently, the NSC emerged out of a strong critique of the dominant child development and family studies' paradigms, in order to acknowledge the social construction of childhood and for the recognition of children's and young people's agency and rights (Tisdall, 2010; Tisdall & Punch, 2012).

The NSC has contributed to raising the status of childhood (Mayall, 2002). Christensen and Prout (2005) also stated that it has led to a shift to seeing children as "social actors whose actions can both shape and change social life" (p. 50). Within the NSC, children are acknowledged as being competent enough to share their views and opinions (Hedges & Cullen, 2003; James & Prout, 1997) and therefore are considered to be experts on their own lives (Clark & Moss, 2011). James (2009) claimed that the most important idea in the NSC is that adults understand children's contribution to society and children's right for agency. The NSC has for the first time ever, placed the child, agency and structure under serious discussion (Qvortrup, 2009). However, it has also been argued that the circumstances and conditions of children's lived experiences contribute to their sense of agency, or lack of it (James et al., 1998; Jenks, 1996; Pufall & Unsworth, 2004).

Qvortrup (1994) made explicit the recent tendency between the social construction of childhood as "human becomings" rather than "human beings" (p. 4).

As Qvortrup (2009) pointed out:

adulthood is regarded as the goal and end-point of individual development or perhaps even the very meaning of a person's childhood. They are however revealing for the maybe unintended message, which seems to indicate that children are not members or at least not integrated members of society. This attitude, while perceiving childhood as moratorium and a preparatory phase, thus confirms postulates about children as "naturally" incompetent and incapable. (Qvortrup, 2009, p. 2)



Contradictory views are, however, held by scholars who are critically reconsidering some of the positions and assumptions of NSC (Prout, 2005; Tisdall, 2010). Uprichard (2008) argued that the commonly held concepts within NSC of the child as “being” and “becoming” are problematic. She argued that the fact that children are moving towards adulthood creates temporality, a perspective shared by the children in her study too. Uprichard claimed that the concept of “becoming” is controversial because it is future-oriented and it seems to neglect the present circumstances of children by focusing on what the child will be in the future – the competent adult. Uprichard (2008) also contested the idea of competence, where the child is seen as an incompetent individual when compared to a skilful adult and argued that the “being” a child is inextricably linked to the “becoming” (p. 305). The key factor here is temporality. Instead, Uprichard (2008) suggested “theorizing children as ‘being *and* becomings’” (p. 303), which is a concept of the child underpinned by the temporality of the two terms, being and becoming.

Prout (2005) suggested that researchers need to move away from these narrow dualistic and oppositional dichotomies that the NSC seems to reproduce because such dichotomies are symptomatic of the modernist focus of childhood studies. Rejecting social constructionism for dealing with human actions and meaning, Prout (2005) suggested that instead the researcher needs to use languages of “non-linearity, hybridity, network and mobility” (p. 82). He suggested the idea of a society where there is no distinction between the social world and nature.

The NSC has been criticised for not providing any ethical guidance for researchers; it fails to regulate their work and so researchers still need to look at other theories for such an explanation (Gray & Macblain, 2012). Furthermore, Gray and

Macblain (2012) argued that the NSC focuses on children as a group rather than on the individual child, and fails to explore important aspects of learning, such as the process of learning, memory and attention. In its effort to define the child as a socially constructed individual, NSC neglects the great contribution of socio-cultural processes that has led to child development (Uprichard, 2008), which is an important theme in this thesis as it is associated with how learning happens.

### **3.8 Listening to Children: Young Children's Perceptions of the Environment and Sustainability in Research**

In the past, EE research involving children was dominated by a developmental perspective and tended to be dominated by children as objects of research, rather than valued contributors to the research process (Cutter-Mackenzie, 2009; Barratt Hacking et al., 2013). Recently, as indicated by Barratt Hacking et al. (2013), in EE research there has been a change of approach towards conducting research *with* and *by* children, therefore positioning children as interpreters of their own lives and their own experiences, rather than as informants. As a result, current research with very young children tends to favour child-centred and creative research methods that help elicit young children's views of the world.

It is believed that this act of listening gives children voice and agency in research. The term "voice" in this thesis refers to what Pufall and Unsworth (2004) termed as "that cluster of intentions, hopes and grievances, and expectations that children guard as their own" and "to the fact that children are much more self-determining actors than we generally think" (p. 8). Pufall and Unsworth (2004) suggested that voice expresses children's intent and can include both verbal and non-verbal communication. The term "agency" in this thesis implies children's capacity

to understand and act upon the world they live in, thus demonstrating competence right from the day they are born (James et al., 1998; Mayall, 2002). Pufall and Unsworth (2004) commented that agency is how children express their voice.

An examination of the related EE and ECEfS literature showed that we have very little understanding of how young children make sense of the concept of environmental sustainability. In contrast, there is a substantial amount of research on children's knowledge about the environment. What research there has been, has looked at different themes in relation to children and the environment, which I discuss below.

### **3.8.1 Children's perceptions of the environment.**

The literature reveals children perceive the environment as equivalent to nature, a view which seldom includes humans. For example, Rejeski (1982) investigated children's perceptions of the natural environment using children's drawings of nature. Two hundred and eighty-five children aged from 6 to 7 years; 9 and 10 years; and 13 to 14 years old, were given a piece of paper with the words "Nature is" at the top and they were asked to draw or write their interpretations of nature. Children aged 6 to 7 years in Rejeski's (1982) study romanticised nature and did not include people, rather the tree was the main natural element in their drawings; children aged 9 to 10 years perceived people as "doing things in nature (but) not to nature" (p. 35); and children aged 13 to 14 years recognised people "as a part of nature" (p. 35). Rejeski (1982) reported that children perceive the environment and nature as synonymous. Rejeski (1982) concluded that children's perceptions of how people relate to the environment can change as they get older.

In her study of children's knowledge about the natural environment, Wilson (1994) interviewed children between 2½ years and 5 years of age. She found that in exposing their knowledge and awareness of the natural environment and their attitudes to it, children showed attitudes of fear, violence and lack of understanding about the natural environment. Phenice and Griffore (2003) used eco-psychology to investigate children's innate relatedness with nature and their perceptions of their relationship with nature. The children in Phenice and Griffore's (2003) study ranged from 2 years 8 months to 6 years 1 month and were interviewed about what they thought about nature and their place in nature. Phenice and Griffore (2003) concluded that everyday experiences, such as eating an apple at snack time, can provide opportunities to discuss ecological facts with children and they argued that this gives the children a sense of the concept of their connectedness to the world.

### **3.8.2 Children's perceptions of nature.**

Keliher (1997) extended Rejeski's (1982) study and used questionnaires, photographs and drawings as stimulus material to explore 6- to 7-year-olds' perspectives of nature. Keliher (1997) reported that children saw "nature [as being] everywhere" (p. 245) and they were able to distinguish between the built environment and the natural environment. Keliher (1997) reported that children were aware of pollution as an environmental issue and often equated pollution with litter. Keliher (1997) believed that children perceived nature as a threatened place, a belief she linked with the influence of television coverage. In fact, television nature documentaries were reported by Keliher (1997) as having a significant influence on children's perceptions of the environment.

Over the years, other researchers also suggested that television and the media are primary influences on children's perceptions of the environment (e.g. Brothers, Fortner, & Mayer, 1991; Davis, 2010; Murphy, 1993; Ostman & Parker, 1987; Payne, 2014). Keliher (1997) also suggested that children's perceptions of nature and the environment developed early in life. Furthermore, she argued that children's perceptions of nature and the environment were unlikely to change significantly unless there was some further intervention. However, longitudinal studies would be required to determine if further intervention would change children's perceptions of the environment and nature, or otherwise.

### **3.8.3 Children's environmental knowledge.**

Studies by Prince (1994) and Prince (2006) showed that 3- to 5-year-old children possess local environmental knowledge. Prince (2006) built on her 1994 study and investigated the creation of a community of learners to integrate EE into the ECCE curriculum, with children, aged 3- to 5-year-olds, teachers and parents. Her research resulted in all participants, children, teacher and parents, creating their own environmental knowledge and acquiring heightened awareness of EE in the ECCE curriculum.

Children's knowledge of environmental issues, particularly their understanding of the management of waste materials, was investigated by Palmer (1995). She interviewed 186 children aged between 4 and 6 years in the USA and in the North-East of England using an autobiographical discussion approach. Children in Palmer's (1995) study expressed conceptions and misunderstandings about waste management. She concluded that despite any misunderstandings presented by the children, they exhibited understandings of processes and events in the world around

them upon which educators can build to help children to understand and be concerned about a range of environmental issues.

To elaborate on Palmer's (1995) study, Palmer, Grodzinski-Jurczak, and Suggate (2003) undertook a longitudinal research with children aged between 4 and 6 years and compared English and Polish children's understandings of waste management. Children in Palmer et al.'s (2003) study were capable of developing a sophisticated understanding of waste issues. Palmer et al. (2003) concluded that availability of teaching resources to support the children's developing understanding, as well as appropriate teacher training to introduce a holistic approach to waste management, were critical in ensuring the acquisition of knowledge by the children.

#### **3.8.4 Children's environmental values, issues and concerns.**

Research on the development of young children's environmental values within primary school contexts was undertaken by Owens (2004). Children, aged 4 to 7 years, in three primary schools in Kent, UK were interviewed twice in one academic year to understand how environmental attitudes and values towards their surroundings developed. Children were given the opportunity to talk and draw about things that were special to them and to explain, if they could, why this was. Owens (2004) concluded that first-hand environmental experience in the outdoors; participative and structured teaching and learning opportunities; motivation and involvement in children's surroundings; and whole-school ethos were essential for children's understanding of, and behaviour in relation to, their environment, a shared sense of community and purposeful participation.

Barraza's (1999) cross-cultural research analysed the drawings made by children aged between 7 and 9 years, in primary schools in England and Mexico.

The results showed that some children manifested a deep environmental concern in their drawings while others were pessimistic about the future of the environment. Observations made by Barraza's (1999) relating to schools' environmental ethos concluded that children from schools with a higher environmental ethos had a more pessimistic view of the environment.

### **3.8.5 Children's environmental attitudes and behaviours.**

An understanding of children's environmental attitudes is important in order to understand their perceptions of environmental sustainability. Musser and Diamond (1999) explored 42 pre-school children's, aged between 3 years 4 months and 6 years 1 month old, and their parents' attitudes towards the environment, using questionnaires. When attitudes of children and parents were compared, the researchers found that there was no direct relationship between parental attitudes and children's attitudes; children's attitudes were reported to have developed from a wide variety of influences, such as siblings, teachers, grandparents, media and books. Perhaps the most significant finding in Musser and Diamond's (1999) study is the fact that children's attitudes were not correlated with verbal ability, but were related to the extent to which they participated in pro-environmental activities at home. Musser and Diamond (1999) concluded that children who participated in pro-environmental activities showing more positive attitudes towards the environment.

### **3.8.6 Children's perceptions of sustainability and environmental sustainability.**

The OMEP embarked on an international worldwide project in 28 countries to collect information about young children's thoughts, comments and understandings of the OMEP 2010 Congress logo, and to enhance the awareness of ESD among

OMEP members. The researchers worked with 9,142 young children, aged between 2 and 8 years. They produced a photograph of the OMEP congress logo (a picture of children “washing” the planet) and interviewed children about this photograph using a “listening to children” approach (Engdahl & Rabušicová, 2010). Engdahl and Rabušicová (2010) found that young children can contribute to positive discussion on environmental sustainability issues. Engdahl and Rabušicová (2010) concluded that “young children under eight years are capable of joining in a discussion on environmental issues that nurtures hopefulness and is futures-focused. The result indicates that many children have a rich knowledge of earth and environment issues” (p. 21).

Kahriman-Ozturk, Olgan, and Guler (2012) studied 36 Turkish 5- to 6-year-old children’s understanding of the 7Rs of sustainable development (reduce, reuse, respect, rethink, reflect, recycle, redistribute). Kahriman-Ozturk, Olgan, and Guler (2012) reported that children expressed ideas about how to reduce, reuse, respect and recycle but they did not express any ideas related to reflect, rethink, and redistribute. Furthermore, the researchers found that gender did not seem to influence the children’s ideas about sustainability. They concluded that sustainability practices must be integrated in the ECCE curriculum and supported by teachers, parents and society.

Kahriman-Ozturk, Olgan, and Tuncer (2012) explored the attitudes of Turkish children aged 5 to 6 years towards environmental issues using qualitative interviews with questionnaires. The researchers found that initially children appeared to have eco-centric attitudes towards environmental issues, but further evaluation of their



responses indicated anthropocentric attitudes. They also reported that the difference in attitudes was not influenced by gender.

In Australia, Stuhmcke (2012) conducted an action research case study to explore the experiences of Kindergarten children, aged 3½ to 5 years, as they undertook a project approach, which involved in-depth investigations around an identified topic of interest, to learn about environmental sustainability. She also investigated the learning journey of a teacher/researcher to embed transformative practices of ECEfS into the curriculum. Stuhmcke (2012) reported that children can be agents of change for sustainability in their local context; children were able to think critically about environmental sustainability issues and to take the role of educators to influence others' environmental behaviour. As a result of my study, a new curriculum model that integrates and is applicable for curriculum development and teacher practice was developed.

Gonzalez (2013) conducted one-to-one interviews, using photograph interpretation, with 11 children, aged 4 to 6 years, in Church and State Kindergarten schools in Malta, to explore their understanding of certain environmental problems, including water conservation, care for the environment, and waste management. Gonzalez (2013) concluded that the Roman Catholic tradition, history, culture and the local context influenced children's thinking about sustainability issues; children tended to either justify or condemn environmental problems based on anthropocentric worldviews; they failed to concede an equal relationship between people and the natural environment.

### 3.9 Conclusion

My thesis is not a theoretical one, but rather an empirical one with a specific focus on ECEfS. However, since my study involved working with young children, an understanding of child development theories was necessary. There is general agreement among researchers regarding the need to consider developmental issues when working with young children. No theory fully explained all salient aspects of child development, so I drew on a range of theories commonly used in ECCE with the aim of creating a foundation on which to build an ECEfS research approach to help me answer the research questions.

Co-constructivist approaches, which are based on the belief that knowledge is socially constructed through children's active participation, are common to ECCE practices. Of significance to my study was the study of cognitive constructivism as proposed by Piaget (1952), especially since the NMC (Ministry of Education, 1999), which was in place at the time of the data collection, was based on cognitive constructivism and DAP. This necessitated an in-depth examination of cognitive constructivism in order to help me understand how children's perceptions of the topic under study came to be. In literature, Piagetian-based theories are credited with enhancing the understanding of childhood. Specifically, within Piaget's maturational theory (1952), substantial emphasis is placed on young children's cognitive immaturity and their perceived inability to understand complex issues. Therefore, a comprehensive exploration of Piagetian-based research in the area of young children's perceptions of environmental sustainability will increase our knowledge of cognition and provide some valuable insights into children's thinking about environmental sustainability.

During my research I kept developmental stages in mind when exploring children's perceptions of environmental sustainability. Having an understanding of children's perceptions based on maturational models also has important implications for practice with young children both in research and in schools. However, it is unlikely that researchers and educators will be able to accurately assess children's perceptions of environmental sustainability, and ultimately create educational programmes that meet the needs of individual children, when children are considered to have little existing knowledge and limited capacity for understanding, and are provided with generic environmental information without regard to diverse socio-cultural contexts. Increasingly, research in ECEfS (Davis, 2010; Davis & Elliott, 2014; Prince, 2006; Stuhmcke, 2012), has recognised young children as more capable of understanding complex issues, and indicated that socio-cultural factors make children's development less predictable than maturational models propose. As discussed in this chapter, there is also significant criticism of the utility of maturational models across diverse populations, and sole reliance on developmental frameworks for my study therefore appeared to be ill-founded. ECEfS research and practice can be greatly enhanced by appreciating the relevance and value of socio-cultural theory and other socio-constructivist perspectives on learning and development to the topic of my study.

In my study I have also referred to the potential utility of socio-cultural theories for deepening understanding of children's perceptions of environmental sustainability. Indeed, in ECEfS few studies have pursued this line of thought (Prince, 2006; Stuhmcke, 2012). For the purposes of my study the focus was on children within the social contexts of the school and home. Therefore, Vygotsky was

of particular importance because, as Jenkins (2009) explained, Vygotsky believed that children construct knowledge through their active social and cultural participation in their community, and by working and exploring ideas collectively. Jenkins (2009) explains that in this way learning becomes more influential and effectual. For this reason, I considered viewing children's perceptions of environmental sustainability in Vygotskian terms. In adopting a socio-cultural perspective, I was able to analyse how transformation happened as a result of participation in a community, where children's participation in cultural processes was transformed as a result of interactions with more experienced peers (parents, teachers and head teachers).

Indeed, Piaget and Vygotsky were listed by Morrison (2007) as two of the key writers within the constructivist paradigm. However, while Piaget (1952) focused on the individual child constructing knowledge as s/he passed through identifiable developmental stages, Vygotsky (1997) focused on construction of knowledge that resulted from the children's social participation believing that the social environment in which the child grows and develops largely determines education. Dockett and Perry (1996) summarised the differences between these two theorists by saying that, "for Piaget, the importance of the social context was that it provided children with a means of testing the knowledge they had constructed. For Vygotsky, the social context is both the source and the cultural repository for the learning" (p. 8). In my study, socio-cultural theory was helpful in the analysis of the social, cultural, and historical contexts present in each case. However, I also need to point out that I viewed Piagetian and Vygotskian perspectives as complementary rather than as opposing theories, even though these theories and the way in which

they are viewed in relation to each other have been the subject of debate in wider literature (Jenkins, 2009). As Jenkins (2009) maintained, “although constructivists’ views differ as to whether children develop cognitively as individuals who interact with their environment, or within a social context via interpersonal interaction, all share the belief that children are *actively* involved in constructing meaning” (p. 31). Indeed, I attempted to find a middle ground between the theories of Piaget and Vygotsky with regard to child maturation and participation in activities, as these theories have the potential to be very useful to ECEfS. However, a broader view of context and considerations of children’s lives in different contexts was also required to answer the research questions.

Ecological approaches to the study of human-environment relationships contribute to theory by proposing that human behaviour is a function of both individuals and their context. Indeed, Bronfenbrenner (1979) argued that children’s development could not be considered independently from the multi-levelled social, material and cultural context in which child development took place, which was also considered during my data collection and analysis. The bio-ecological model of human development (Bronfenbrenner & Morris, 2006) was deemed particularly useful in my study to help me better understand the topic under study, answer the research questions, understand the dynamic nature of the relationships involved in this process, and examine the influence of context on children’s perceptions of environmental sustainability. The bio-ecological model (Bronfenbrenner & Morris, 2006) supports the importance of a systematic description of the complex dynamics in different contexts in which child development takes place – in the case of this thesis the home and school – and the relationships between these contexts and the

people therein, in the case of my thesis the parents and educators. The bio-ecological model also provided a framework to explain immediate and remote influences on children's perceptions. Specifically, qualitative data collected with adults in my study provided perspective on the proximal processes at work during the data collection period and their influence on child development during this time. The relationship between head teacher, teachers and parents, and their beliefs and practices, which may influence the children's perceptions of environmental sustainability between the two contexts (home and school), were expected to be an important factor in developing a better understanding of the topic under study. Rather than just bridging a gap between home and school, the emphasis was on building a sense of continuity between the two contexts. A greater understanding of the relationships between contexts, and the differences of opinion concerning them, will enhance our ability to develop this continuity. Therefore, I used the bio-ecological model (Bronfenbrenner & Morris, 2006) to assist me in conceptualising children's perceptions of environmental sustainability as being more broadly determined by the complex interaction between individual characteristics of the child and the conditions of both proximate and distal contexts in which those individuals lived.

Using a bio-ecological model (Bronfenbrenner & Morris, 2006) helped me understand the role of place in the children's responses and I was able to see the children as part of a dynamic and reciprocal relationship with their contexts. In addition to the qualitative methods used in my study, this model allowed for the exploration of the role of factors particular to each child, such as socio-economic background, age and gender that might have (or might not have) influenced their

perceptions. This model for conceptualising and studying influences upon young children has been adopted by Prince (2006) in EE research in ECCE and has been recommended by Davis (2010).

The PPCT model was proposed by Bronfenbrenner and Morris (2006) as being an operational research design that facilitated research following their bio-ecological model. In terms of my study, the *Process* was investigated when I explored the participants' perceptions and beliefs about environmental sustainability, their opinions of the school and home process of PEBs and environmental sustainability, and the factual aspects such as policies and practices in place in schools and at home with regard to environmental sustainability. Each case in this thesis gives a more in-depth view of the process in the individual lives of each child as s/he engages with environmental sustainability. The *Person* element was accounted for in my study in terms of the case study children and their individual accounts of their perceptions of environmental sustainability. The adults also provided information about the *Person* element when they provided information about their environmentally-related experiences. The *Context* element in my study included information provided by participants about the places in which they have developed their opinions and their experiences. It is important to note, however, that I was unable to fully explore the *Context* element in each case mostly because of time and financial constraints, and access by gatekeepers to different contexts in which the children lived, for example grandparents' homes, Church and other contexts in which the children participated after school hours and outside the home. The *Time* element in my study was important in terms of the timing my study, during a period when there was a general election campaign taking place in Malta, which

led to a change in the Government of Malta and the political party ruling the country. The *Time* element was also important in terms of resources available to schools at that time. It is important to note, however, that I collected my data over a 12-week period and so I was unable to fully employ the *Time* element in my study. This is because 12 weeks is a very short period in which to have enabled me to observe changes taking place which could have influenced the children's perceptions of environmental sustainability over time, for example, throughout an academic year at school.

Taking this view of the child in different contexts allowed for the contributions of children, teachers, head teachers and parents, as well as the resources of their community. Like socio-cultural theories, the bio-ecological model considered not just the child's internal development, but also any social and political influences upon child development, and both theories acknowledge the importance of socially activity to child development and learning as a consequence of participation in social and cultural processes. This is important because it provided a rationale for using these theories as a way to interpret my data.

Socio-cultural theories argued that children learn by interacting in socio-cultural contexts and bio-ecological theory stipulated that the influences between contexts are bi-directional; however, neither of these theories considered inter-generational influences, particularly child-to-adult, which might be taking place as a result of these interactions. Indeed, theories of inter-generational influences helped me understand how children's perceptions came to be and any influences there might have been: from child-to-adult as well as from adult-to-child. For this reason, my thesis is also informed by theories of inter-generational influences and the family



dynamics that influence children's perceptions of the issue under study. The descriptions of inter-generational influence in the literature and the potential role that family dynamics play in mediating the effectiveness of knowledge transfer from home/school to child and *vice versa* informed the discussion of results from interviews with the 12 case children, their parents, head teacher and teachers.

When considering the theoretical standpoints for my study, I decided to put children's rights to the fore. Within the areas of international research, practice, and policy, the rights of children to have their voices heard are becoming widely recognised (Christensen & Prout, 2005). An understanding of the concept of the child, the UNCRC and the NSC were also useful because processes to impart information, and to consult meaningfully with young children, are essential components of children's effective participation in research. The notion of child development also appears throughout UNCRC and is specifically articulated in Article 12, which States that the emerging capabilities of the child should be taken into account with regard to appropriate participation. Therefore, my thesis has been framed with a vision of children as being both active agents in their own lives and competent participants in the research process.

Overall, there is both flexibility and synergy between these theoretical disciplines because they emphasise the importance of child participation in social contexts. In my thesis, they have been advanced to address children's perceptions of environmental sustainability and the contextual influences upon them. Particularly, they do this by addressing the multiple contexts in which children may experience environmental sustainability.

Drawing on evidence in the literature, this chapter has also explored some of the research previously carried out by environmental researchers with young children, which has provided information about the important elements involved in children's understandings of these issues. While interest in children's knowledge of environmental and sustainability issues has led to interesting research outcomes, the way in which children might perceive environmental sustainability in the context of the home and school, and what might influence these perceptions, remains largely unexplored. Therefore, my study has identified a significant research gap, as previous environmental research with young children has taken little consideration of children's own perceptions of environmental sustainability and how these change depending on broader socio-cultural dimensions. It argues that young children are active agents within their socio-cultural contexts and are not passive recipients in their environmental learning.

## CHAPTER 4: METHODOLOGY AND METHODS

In this chapter, I describe the methodology and research design for this thesis. I start this chapter by providing an overview of the major research traditions commonly used in educational and EE research. Next, I discuss the rationale for adopting a qualitative and interpretive methodology, and justify the use of a qualitative and multiple case study approach. This is followed by a description of the pilot, data collection methods, together with the data management strategies and analysis procedures adopted. Finally, I discuss the ethical issues in research involving young children and how these were dealt with during this study.

In keeping with the interpretive tradition of case study research, I avoid presenting the research process as if it were linear. Rather, I embrace the “*rhetorical assumption*” (Creswell, 2007, p. 19) and narrate the story of this research process in the first person, and explain how it unfolded. I also present and explain the roles played by the participants and myself in the different settings that made this research possible. My role and experiences in this process are also included, such as the joys and challenges that I faced as a researcher during the data collection phase and how I dealt with ethical issues.

I acknowledge that the issue under study is complicated. Therefore, in this chapter I am careful to ensure that the reader does not get lost in the methodology. To ensure that this does not happen, I will explain the research process in detail. I argue that, in so doing, I will be gradually deepening the readers’ awareness of my research process.

#### **4.1 Rationale for the Research Methodology**

Social science researchers have used at least three major philosophical paradigms – positivist, interpretive and critical – to define and categorise research philosophies (Pring, 2004). In essence, positivist researchers seek to explain social phenomena; interpretive researchers seek to understand social phenomena; critical researchers try to change and challenge social phenomena (Denzin & Lincoln, 1994; Pring, 2004; Rubin & Rubin, 2012). Creswell (2013) believed that when researchers select a paradigm they are being subjectively oriented towards a way of doing research. Creswell (2013) highlighted that this decision depends upon what the researcher wants to find out and this choice is obviously not value-free. Careful consideration of these three paradigms in social sciences was useful in helping me to design this study following the interpretive tradition.

The principal aim of my study was to achieve an in-depth knowledge of the children's perceptions of environmental sustainability and the contextual influences upon them, rather than to test hypotheses or predefined variables. Moreover, in this study I was not searching for absolute truths but I was trying to understand and interpret the participants' perceptions of environmental sustainability in their social contexts. Thus, techniques of probability, hypothesis testing and inferential statistics would not have adequately captured the participants' reality of the issue under study. Therefore, in my study children's perceptions could not be adequately captured using a positivist approach. Since the exploration of meaning of people's perceptions of an issue occurs within a specific context through which an understanding of the phenomenon emerges, results cannot be cross-contextually generalised to other situations either. As indicated by Pring (2004), human behaviour is too diverse,

unpredictable and complex to be adequately captured through the positivist methods of quantitative measurement and generalisation.

Crotty (1998) explained that an understanding of the social world and the reality of different people can only be obtained from first-hand knowledge of the subject under investigation. The critical paradigm was also considered in terms of its suitability to address the research questions. Creswell (2007) explained that this paradigm stems from critical theory and is conducted to understand and give account of behaviours in societies and for the “empowering of human beings to transcend the constraints placed on them by race, class, and gender” (p. 27). However, the present study set out to understand the participants’ perceptions of environmental sustainability, not to change them.

Next, I considered the suitability of the interpretive paradigm for my research. Interpretive research is built on the assumption that in social life there are multiple interpretations of reality. Therefore, the purpose of interpretive research is to clarify how these interpretations and understandings are formulated, implemented and given meaning in real-life situations (Creswell, 2007; Pring, 2004; Randor, 2002; Robottom & Hart, 1993). The epistemological principle in interpretive research is transactional and subjectivist (Denzin & Lincoln, 1994). Interpretive meaning is subjectively influenced by the values and intentions of the researcher (Creswell, 2013; Denzin & Lincoln, 1994; Pring, 2004). In fact, interpretive research has been criticised for this subjectivity (from a positivist perspective) and for failing to acknowledge the political and ideological influences on knowledge and social reality too (from a critical perspective). The ontological assumptions of interpretive research are relativist, as social reality is seen differently by different people who

interpret the same events differently, and therefore multiple meanings of reality exist (Denzin & Lincoln, 1994; Pring, 2004; Rubin & Rubin, 2012). Interpretive research aims to understand the phenomenon under study from the inside through appropriate methodology and theoretical principles. The interpretive paradigm focuses on language, symbolic systems and communication in order to understand how people make sense of and act on their social world. Philosophically, this positions my study in line with an interpretive methodology and qualitative research approach.

## **4.2 Qualitative Research**

The guiding rule of selecting a methodology is the appropriateness of the methodology for research questions (Gall, Gall, & Borg, 2007). Guided by the research questions and the characteristics of qualitative methodology, this study follows qualitative research traditions consistent with the interpretive paradigm.

Qualitative research is a broad approach to the study of social phenomena, which has been explained by Merriam (1998) as an umbrella concept that has numerous variations and forms of inquiry. Denzin and Lincoln (2011) declared that qualitative research is hard to define because it includes many methodological practices. Creswell (2013) listed five approaches to qualitative research: narrative research, phenomenology, grounded theory, ethnography and case study. According to Mason (2002), due to the different strategies, techniques, theoretical and philosophical positions adopted in qualitative research, it cannot fit “neatly into one uniform philosophy or set of methodological principles” (p. 3). Mason (2002) however viewed this difficulty as being one of the strengths of qualitative research.

Qualitative research approaches share common features and principles. The key philosophical assumptions of qualitative research are based on the view that

reality is constructed by individuals as they interact in their social worlds (Merriam, 1998; Stake, 2010). Specifically, as explained by Stake (2010), “By *qualitative* we mean that it relies primarily on human interpretation and understanding” (p. 11). Therefore, there is no single reality but rather multiple perspectives co-exist and it is up to the researcher to try to understand the different perspectives and realities brought to the research by participants. In this regard, Stake (2010) linked qualitative research to interpretive research, which is also experiential, situational and personal. Similarly, Mason (2002) described qualitative research as, “...grounded in a philosophical position which is broadly ‘interpretivist’ in the sense that it is concerned with how the social world is interpreted, understood, experienced, produced or constructed” (p. 3). Mason (2002) also described qualitative research as using data collection methods which are both flexible and sensitive to the social context in which data are produced, and are based on methods of analysis, explanation and argument building of complexity, detail and context which produce rounded and contextual understandings of the issue on the basis of rich, nuanced and detailed data.

Qualitative research is best suited for studies in which the variables are not known and the literature has yielded little knowledge about the phenomenon under study (Creswell, 2005). Furthermore, Stake (2010) noted that “studies with emphasis on personal experience in described situations are considered qualitative” (p. 14). Given the lack of availability of descriptive research into young children’s perceptions of environmental sustainability and the contextual influences upon them, a qualitative methodology was particularly appropriate for my study. Furthermore, such data could only be obtained from first-hand knowledge of the phenomenon

under investigation. Thus, at an epistemological level, my study assumes that children develop their perceptions of environmental sustainability through social interactions. Therefore, qualitative research provided me with an in-depth understanding of the phenomenon under study, rather than the absolute truths of quantitative studies.

In order to have a better understanding of the issue under study, a qualitative multiple case study was adopted. This study combines the research methods of qualitative inquiry and the research techniques of the case study. The rationale for using a qualitative multiple case study methodology is outlined below.

### **4.3 Multiple Case Study**

Several authors have contributed to the development of case study research and they differ in their definition of a case study. For example, Merriam (1998) asserted that, “A case study design is employed to gain an in-depth understanding of the situation and meaning for those involved. The interest is in process rather than outcomes, in context rather than a specific variable, in discovery rather than confirmation” (p. 19). Therefore, Merriam (1998) asserted that case study research provides rich descriptions about the case so as to illuminate new meanings for the reader. Yin (2009) defined a case study as “an empirical enquiry about a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 18). A case study has been described by Stake (2006) as a noun, a thing, or an entity. Stake (1995) described it is a form of “experiential knowledge” that conveys the experience of the people involved in the case as well as the researcher studying the



case, while allowing the reader to have a “vicarious experience”, i.e. an experience in place of someone else (p. 63).

Case study research is a strategy that embraces different methods. For this reason, there is little consensus on what makes a case study and how this type of research should be carried out. Several researchers have written about the different procedures available for conducting case studies. For example, Mason (2002) and Merriam (1998) discussed a more general approach to qualitative case study in educational research. Yin (2009) described a positivist approach to case study research, while Stake (1995, 2006) described a qualitative approach to case study research. Creswell (2007, 2013) relied on both Stake (1995) and Yin’s (2009) approaches to case study research to form his approach. Despite these different approaches to case study research and the philosophical positions adopted by these researchers, they share a common factor: the importance of the understanding of the case as the main characteristic of the research approach.

Stake (1995) claimed that a case study is the qualitative study of a bounded system in time and place that is distinguished by some characteristic that defines it for the study. Stake (2006) defined three types of qualitative case study research: intrinsic, instrumental and multiple. An *intrinsic* case study is conducted when the researcher wants a better understanding of the particular case (Stake, 2006). An *instrumental* case study is conducted to provide insight into an issue, or to refine theory, where the case and its context are examined in detail (Stake, 2006). Specifically, an instrumental case study is conducted to improve the understanding of an issue. A *multiple* case study is the instrumental study of a series of bounded systems that together provide insight into an issue (Stake, 2006). A case study can

be conceived as being either typical or atypical. Stake (1995, 2000) explained that the researcher studies both what is common and what is particular about a case because the themes and issues that emerge serve to emphasise the social phenomena under investigation.

A case study draws attention to what can be learned from closely examining a case (Stake, 2005). A qualitative case study approach was chosen in my research because I was interested in the process and the uniqueness of the case, and the new knowledge that emerged from the case in particular contexts. The selection of an interpretive qualitative case study approach for my study was taken on the understanding that, “knowledge is socially constructed ... and through their experiential and contextual accounts, case study researchers assist readers in the construction of knowledge” (Stake, 2005, p. 454).

Case studies that focus on a single case have the benefit of describing their uniqueness, but as Stake (1995) explained “Cases seldom exist alone” (p. 72). Even single cases are not isolated but bound up in networks of other systems. In this study, in order to address the research questions and to capture the complexities of children’s perceptions of environmental sustainability and the contextual influences upon them, I adopted a multiple case study approach together with qualitative research methods that allowed for contextual understanding and “thick description” (Mason, 2002; Merriam, 1998; Stake, 1995, 2006; Yin, 2009). The multiple case study in this thesis is made up of 12 case studies.

The term “quintain” was coined by Stake (2006, p. vi) as a condition in which we seek an example to study and understand better, by using a multiple case study approach. Specifically, the quintain was defined by Stake (2006) as, “an object or

phenomenon or condition to be studied – a target, but not a bull’s eye. In multiple case study, it is the target collection” (p. 6). In this sense, in my study, the quintain is the children’s perceptions of environmental sustainability and the contextual influences upon them.

Stake (2005) emphasised that in designing research there needs to be a careful distinction between the case and the factors that affect it; while these may be intertwined, the focus must be on the case rather than on the process. This argument is taken a step further by Yin (2009), who suggested that “you would use the case study method because you wanted to understand a real-life phenomenon” (p. 18). The case studies in my thesis confirm this description. Each case study involves the perceptions of environmental sustainability of children, as well as of the parents, teachers and head teacher in the contexts of the school and the home.

Stake (2006) suggested three main guidelines for selecting multiple case studies: the case must be relevant to the quintain; the cases must provide diversity across contexts; and the cases should provide opportunities to learn about complexity and contexts. Following Stake’s (2006) advice, each case study is considered as a specific entity, influenced by the uniqueness of the contextual factors and the determining factors that occurred both inside and outside each case. This ensured my study would align with its expected outcomes.

Case study research is useful in educational research to describe context-specific educational situations (Kyburz-Graber, 2004). Context is an important aspect in my research, making this study an “*instrumental case study*” (Stake, 1995, p. 3). In fact, my study conformed to the criteria of both a multiple case study and an instrumental case study, which is mainly to provide insight into an issue. Stake

(2006) asserted that, “With multicase study and its strong interest in the quintain, the interest in the cases will be primarily instrumental” (p. 8). Following Stake’s (2006) suggestion, in my study, each case was undertaken to understand both the commonality and the differences across the manifestations of the quintain and to gain an understanding of the particular entity of each case. This was useful in the sense that it helped me see below the surface to examine, explore and understand the case across the contexts of home and school more thoroughly, while appreciating that it was part of an integrated system.

Stake (2006) noted that the findings of multiple case studies do not preclude the possibility of applying what we have learned from a particular case to other cases – what he calls “naturalistic generalization”, which he described as, “conclusions arrived at through personal engagement in life’s affairs or by vicarious experience so well constructed that the person feels as if it happened to themselves” (p. 85). However, in this study, I did not set out to generalise my findings to the Maltese population. Stake (2000) stated that, “a few cases are poor representation of a population of cases and poor grounds for advancing grand generalization” (p. 245). In agreement with Stake (2000), I believe that the few case studies presented in this thesis do not represent the Maltese population. Stake (2000) further explained that the, “purpose of case study is not to represent the world but to represent the case. Criteria for conducting the kind of research that leads to valid generalization need modification to fit the search for effective particularization” (p. 245). In my study, each case reflects the child’s perceptions of environmental sustainability in her/his unique and interesting ways. Specifically, the goal of my qualitative multiple case study research is to optimise understanding of the unique features of the cases

through narrative, rather than to generalise beyond the case to other cases. The reason for this choice is that even though multiple case studies provide a comparison with other cases, this was secondary to an in-depth and high quality understanding of each case in my study.

#### **4.3.1 Strengths and limitations of qualitative case study research.**

There are a number of strengths and limitations of case study research that need to be kept in mind. As indicated by Merriam (1998), case study provides a rich and holistic description of a phenomenon by offering insights which can help to structure future studies, and it is important in helping the advancing of the knowledge base in this case in education. A multiple case study design is more challenging, more time-consuming, and requires more resources than a single case study and there are no set guidelines for the final reporting in a case study. So, often the final report of a case study will be guided by the research questions. However, in the final analysis, the strengths of a case study outweigh its limitations and a case study approach offers the researcher an opportunity to investigate and understand better the quintain (Stake, 2006).

The sensitivity and integrity of the researcher poses limits on case study inquiry because in qualitative case study research, the researcher is the main instrument of data collection and analysis. Both the reader and the researcher need to be aware of the researcher's bias in terms of the final product. In fact, the role of the researcher in qualitative research is often critiqued. In qualitative research the researcher usually is the main instrument of data collection and interpretation. This gives rise to subjective points of view that may affect how data are gathered and interpreted. In fact, qualitative research has been described by Stake (2006) as not

being “value-neutral” (p. 84) but observations and interpretations in qualitative research are shaped by the researcher’s personal experience, culture, and community. However, values are of particular importance in qualitative research because as Stake (2006) noted, in this kind of research, the researcher is often interested in understanding a personal or political issue. As a result, the findings of qualitative research can come to reflect the researcher’s views rather than the participants’ view (Denzin & Lincoln, 2005; Merriam, 1998). Yet, qualitative researchers acknowledge that their research is subjective and they make their subjectivities known. In this research, I make my subjectivity and biases known and so I discuss myself as a researcher and my role as a researcher.

#### **4.4 Myself as a Researcher**

This research process has been influenced by who I am as a researcher. I acknowledge that my personal history, values, gender, social class, race, and ethnicity and those people whom I encountered in the research setting, have shaped the process of this study. These not only contributed to the design and analysis of the study but also played a significant role in the way I behaved as a researcher. At this point, this necessitates an understanding of who I am and what I believe in.

##### *1. I am an advocate for the promotion of environmental sustainability.*

From an early age, the natural environment has played a major role in my well-being. Since I was a child I remember being outdoors most of the time, playing in nature. I remember the days when all the children in the neighbourhood would play in the fields every single day. During my teaching career, I provided children with opportunities to learn outdoors by integrating these experiences into my lesson plans whenever possible, with the aim of instilling in children a love for nature. In

my spare time, I usually go for long walks in the rural area near my home, where I get a glimpse of the countryside and the horizon, which I find very relaxing and invigorating. My love for the natural environment has led me to promote sustainable lifestyles in my community, where in the past I've worked with the local council in my village to promote walking in the area.

*2. I am an early childhood teacher and a believer in the foundational importance of the early years.*

As a teacher, I believe that the first few years of a person's life are a critical period because they lay the foundations for their cognitive and physical development, health and well-being. This has been evidenced by research too (Centre on the Developing Child at Harvard University, 2010; National Scientific Council on the Developing Child, 2007). I also believe in supporting the education of young children as a step towards developing a more sustainable society. During this formative time, young children form quality relationships with significant caregivers in their lives. These relationships can also be catalysts for intergenerational influences in promoting sustainable lifestyles in families.

*3. I believe in the influence of context.*

As a teacher, I am aware of the significance of context in a child's development, which has led to the use of socio-cultural and ecological perspectives in this thesis. As indicated in Chapter 1, this research stemmed from my interest in the influence of context in the development of children's perceptions of environmental sustainability. I wanted to know which contexts were more conducive, or otherwise, to children's perceptions of environmental sustainability. An understanding of the contexts the children lived in enabled me to understand their

individual characteristics, and the particular parental and teacher behaviour, which led to the particular perceptions of environmental sustainability by the children.

These components permeated all aspects of the research and provided a particular lens through which the ethical principles in this study were dealt with. In summary, who I am has also influenced my role as a researcher.

#### **4.4.1 Ethical issues and my role as a researcher.**

The role of the researcher is central in conducting qualitative research and as Merriam (1998) suggested it is also “limited by being human” (p. 20). Feelings of confusion and conflict about the role I was supposed to take prevailed, particularly during the pilot study.

Issues of power are considered important during research, particularly if research is carried out with young children. Typically, adults have authority over children and one cannot ignore the subordinate position of children, so this must be taken into account by the researcher. MacNaughton (2005) described the researcher-child relationship as a relationship of power. Negotiating my role as a researcher with young children was one of the most difficult parts of this research, especially at the beginning. For this reason, ethical principles guided the interactions between the participants and me. The fundamental ethical principle in this study was that the children’s welfare was a priority over the research.

The impossibility of removing the adult-child power relationship in research is one critique of ECCE research. Gallagher (2009) insisted that there is a consensus in childhood studies that children are disadvantaged and subordinated to adults in society and this makes children vulnerable to exploitation and abuse. Concerned about this issue of power in ECCE research, Mandell (1991) recommended that the



researcher takes the *least adult role*. However, this recommendation too has been criticised by Christensen and James (2000) for being naive and ignoring the complexity between the adults' and the children's perspectives. It has also been criticised by Mayall (2008), who suggested that power relations between adults and children cannot be ignored.

From my experience as a teacher, I knew that Maltese teachers might not welcome a researcher in their classrooms, for fear of being judged. To resolve this ethical dilemma, prior to initiating the research I had a meeting with the head teacher, teachers and parents, where I reassured them that my role in the school would be that of a researcher and that I was not there to assess their performance. However, in the beginning, they expected that I would adopt more or less the same role as them, that is, to act as a teacher and exert control over children when needed. However, I discussed with them the roles that they were expecting me to have, and the role that I wished to take on. They were happy for me to take the role of the researcher as an observer rather than a teacher, in which I had no control over the class. I also assured them that no aspect of the research would be discussed with the Ministry of Education and Employment in Malta, or any other authority. Furthermore, I assured them that if they were ever concerned about my role as a researcher or about any aspect of the study they could confidentially approach me or their head teacher. The teachers' discomfort was eased when I offered them the opportunity to consult my field notes if they felt the need to. Although none of the teachers asked to see my field notes, I could see that this approach improved my rapport with them. They interacted with me more often during the observations and

seemed to be more at ease in their classroom practices while I was there observing the children.

There is a tradition in many Maltese schools, where teachers are addressed as Ms. or Mr. followed by their first name or surname, for example, Ms. Jane or Ms. Spiteri. During the data collection phase, I asked the participants to call me by my first name, Jane, because I did not want them to see me as an authority. Despite my insistence to be called by my first name, teachers introduced me to the children in my teaching role when they told the children that I was a teacher. I responded by explaining that I was not there as a teacher but rather as a researcher. Therefore, I introduced the research to the children by involving them in a short talk, during which we sat informally in a circle on the floor or on little chairs, which I will describe in more detail in Section 4.5.2. The children were intrigued with the idea of what “research” was. Thereafter, the children appeared to understand better the concept of research. I realised later that sometimes they were still confused about the concept of research. However, my experience as a teacher helped me establish a respectful and trusting relationship with the children and I reminded them of the story in a circle and that I was not there as a teacher.

Taking on the role of an observer still posed challenges with regard to power relations between the participants and me. I acknowledged this issue of power in my research and so I strove to redistribute power more equitably. Barratt Hacking et al. (2013) argued that children are the least powerful participants in research, and despite attempts by researchers to go beyond observations and include children’s voices, research is still necessarily controlled and led by adults, and very often children are only included in research as informants rather than as interpreters or co-

constructors of the research process. In my study, I set out to give the children a voice but this in itself poses a lot of challenges to the researcher (Danby & Farrell, 2004; Davis, 2009; Gallagher, 2009). I used some creative research methods, sometimes called participatory methods (Clark & Moss, 2011), with children to help redress the power imbalance, first by acknowledging children as experts of their own lives (Clark & Moss, 2011), and second, by acknowledging human interdependence in research (Tisdall, Davis, & Gallagher, 2009). The research methods are discussed in Section 4.7. Focusing on participatory methods with young children, Schiller and Einarsdottir (2009) ask, “whether the pendulum ha[d] swung too far with children’s voice seen as the most important perspective?” (p. 127). The question here would be whether, in trying to realise the aspirations of creative research methods, researchers might be asking too much of children, making them into what Aries (1962) described as miniature adults.

Another argument was presented by Lahman (2008), who stated that children in research are “*always Othered*” (p. 282). This brings back to mind the discourse about the positioning of the children and the adult in research – what some have called the inter-subjective dynamics of the researcher-researched relationship (Finlay & Gough, B., 2003). Lahman (2008) suggested that in order to remain reflexive and address this inter-subjectivity, “the acknowledgement of child as Other is a step closer to understanding and engaging with children intersubjectively” (p. 293). However, Lahman (2008) emphasised that acknowledging the children as “Othered” should not stop researchers from attempting to form meaningful relationships with the children they research” (p. 296). Indeed, most children are familiar with being directed by adults and fulfil adults’ expectations of them. Aubery and Dahl (2005)

argued that adults can create a culture in which children are expected to talk.

However, Greene and Hill (2011) noted that children are capable of undermining and resisting the adults' authority and so researchers must be aware of the meaning that this adult–child interview relationship holds for the child.

At times during the research, however, the power imbalance was difficult to minimise and so in such situations power was negotiated (Christensen, 2004). For example, when the children took my personal belongings during observations, or when the children expected me to be an authority in the classroom and help them with their school work whenever they did not feel like talking to their teacher. As a teacher, parent, and researcher, I was aware of the adult–child power relationship that might influence the research process and the data. For example, I sat on the children's chairs or on the floor like them, used their tables and had lunch with them. The children were allowed to look at my field notes, and as some of them were unable to read, I read the notes out to them. Subsequently, they were allowed to ask me to make changes to any of my field notes where it referred to them. This does not mean that power was eliminated. Power had to be frequently negotiated and shared between the participants and me. Power was present during interviews when the participants asked to pass on questions. During this study I became aware of the power of the tiny digital recorder – the participants, especially the adults, commented about how uncomfortable they felt about being recorded but all of them still accepted to be recorded.

In summary, my study was influenced by my ontological assumption that reality is both subjective and multiple, and is seen differently by the participants in this study. As a researcher, my epistemological assumption influenced me to try to

lessen the distance between myself and the participants by spending time in the field with the participants and understanding “how knowledge is known – through the subjective experiences of people” (Creswell, 2013, p. 20). Given my axiological assumption, I openly discussed my values and how they shaped this research and reported the values and interpretations of the participants. This process led me to ask myself “How do I know what I know?” during the research process. In order to critically answer this question I had to engage in a reflexive process.

#### **4.4.2 Researcher reflexivity.**

The qualitative researcher is the primary instrument for collecting and analysing data, making qualitative research a subjective process (Mason, 2002; Stake, 1995). I attempted to address the issue of subjectivity through adopting a reflexive, or “self-awareness” (Creswell, 2007, p. 11) approach to this research. Reflexivity in qualitative research has been defined by Tisdall et al. (2009) as “the thoughtful reflection of a researcher upon the impact of her or his research on the participants, their social world, on the researcher her- or him-self and on the knowledge produced” (p. 229). In other words, reflexivity as a methodological tool in qualitative research is an active, ongoing process of examining the researcher’s subjectivities, and how these impact on the research process, and *vice versa*. It also entails reflexive self-criticism, in the sense that it enhances the positive status of knowledge that emerges following the researcher’s self-criticism.

Part of the reflexivity process in my study involved reflecting on and critically re-evaluating my research. I documented my thoughts and feelings about this research process. Toward this end, I kept detailed journal notes, which I updated immediately after the events, or as soon as possible thereafter. As Finlay and Gough,

B. (2003) observed, this act of reflexivity helped me to critically explore my impact on the process and interpretation and I also explicitly described the decisions and dilemmas encountered during the fieldwork in my journal. This represents an analytically reflexive stance, which allowed me to critique my own subjectivity and to remove some of my influence on the participants by acknowledging it. I described my subjectivity through a rich narrative as a way to reduce and understand my influence on the study. I also described my visibility, or how my presence in the research contexts influenced the participants.

In this study, reflexivity has allowed me to explore in-depth perceptions of environmental sustainability and I grew as a researcher. Drawing on excerpts from the researcher's journal, I made links between the literature and methodology, decisions taken during the study, the process of reflexivity, and my evolving understanding of the complexities of an interpretive qualitative case study research.

#### **4.5 The Pilot Study**

The pilot study (thereafter referred to as the pilot) was guided by the research question:

- What perceptions of the environmental impacts of climate change do young children (aged 3 to 7 years), their parents, teachers and head teacher have?

The pilot was conducted in Malta, over a period of 8 weeks, between 16<sup>th</sup> July and 7<sup>th</sup> September, 2012. My intention was to develop ways of distinguishing between relevant and non-relevant data prior to conducting research for the main study at other sites. Therefore, the pilot provided an opportunity to test the data collection methods and to test the usefulness of the data analysis approach I intended

to use. Another purpose of this pilot was to test whether exploring participants' perceptions of environmental impacts of climate change was feasible for the main study.

#### **4.5.1 Context and participants.**

Gaining access to schools for the pilot was a challenging process which took about 5 months. I applied for permission to carry out research in Maltese schools at the University of Edinburgh and the Ministry of Education and Employment in Malta. After my research proposal had undergone all ethical reviews and was deemed as ethically appropriate, permission to conduct this research was granted. A list of primary schools was obtained from the local education authorities. In total, 15 State and 5 private independent primary schools around Malta were contacted via e-mail to participate in the study. I did not approach Church schools in Malta.

Three schools agreed to participate: one private independent school; one State school; and one co-operative school, run by the State and the private sector. These schools were located in the southern part of Malta. The participants were 2 co-ordinators; 3 student teachers; 3 play workers; 14 parents, and 15 children, aged between 3 and 7 years, as indicated in Table 4.1.

**Table 4.1. The case study schools in the pilot.**

Case Study 1	Case Study 2	Case Study 3
<ul style="list-style-type: none"> <li>•Primary state school</li> <li>•2 children (boys, age 7)</li> <li>•3 student teachers</li> <li>•1 coordinator</li> <li>•1 parent (mother)</li> </ul>	<ul style="list-style-type: none"> <li>•Primary co-op school</li> <li>•2 children (boys, ages 5 and 6)</li> <li>•3 play workers</li> <li>•1 coordinator</li> <li>•2 parents (mothers)</li> </ul>	<ul style="list-style-type: none"> <li>•Primary private independent school</li> <li>•11 children (boys and girls, ages 3, 4, 5 , 6, 7, and 8)</li> <li>•11 parents (mothers)</li> </ul>

For ethical reasons, I asked participants whether they wished to be recognised by their own name or by a pseudonym. Some chose to be identified by their first name while others chose a pseudonym, and each school has a pseudonym as requested by the administrative staff of each setting.

#### **4.5.2 Design and conduct of the pilot.**

This pilot was designed as an interpretive study, which was made up of three qualitative case studies, where each school was considered as a case study. The research methods used included observations, semi-structured interviews with children and adults, document analysis, photograph interpretation, children's drawings and their interpretation, and a researcher's journal. These research methods will be discussed in Sections 4.7.

A week before initiating the pilot I distributed the information sheets for children (see Appendix 2) and adults (see Appendix 3); and consent forms for children (see Appendix 4), for co-ordinators, student teachers and play workers (see Appendix 5), and for parents (see Appendix 6), to the school administration. The



school administration then handed these forms to the staff, children and parents. I attended each school for a day prior to initiating my observation so that I could be approached by interested parents. Before conducting the interviews, I spent three days observing the children in each class, in each school, in an attempt to get to know all the children and staff. I used an observation schedule (see Appendix 1) to record my field notes. I observed the children and their student teachers in case study 1, in one classroom; the children and their play workers in case study 2, in one classroom; and the children in case study 3, in eight classrooms. The participants (children and adults) chosen were the ones who submitted their consent forms, expressing their desire to participate in this study.

During the pilot, I needed to develop a method to help children understand the purpose of my research and their role in it. I explained to the children that I intended to write a book about what children think and I invited them to help me do it. I also used pictures to explain the research process to the children (see Appendix 7). Furthermore, in order to help them understand my intentions better, I showed them my master's thesis in which I had carried out work with young children, and which also included pictures of children working with me.

I had designed a set of five smiley faces, ranging from happy faces to sad faces (see Appendix 8), which the children could use at any time during the data collection phase in order to communicate with me, or if they could not express themselves in words. Teachers complained to me about this idea of using these smiley faces because they thought they would be asked by the school administration to follow a similar procedure, and they claimed that they did not have the time to do

it. In a way, they felt that these methods were interrupting their daily schedule. So I created a stop card and a question mark card instead (see Appendix 9).

Following my observations in the classrooms, a number of semi-structured interviews were conducted with the children (see Appendix 10); the co-ordinators, student teachers, play workers (see Appendix 11); and parents (see Appendix 12). Interviews with all participants were conducted at the children's case study schools. During the conversational interviews with the children, I used eight photographs which the children were asked to interpret (see Appendix 13). Interviews with children lasted between 10 and 20 minutes, during which I used a puppet to facilitate my conversations with them. The interviews with the parents ranged between 10 and 40 minutes in length; the interviews with the student teachers and play workers ranged between 20 and 45 minutes. Interviews with the coordinators lasted between 30 and 65 minutes. All interviews were scheduled at a time and place convenient for the participants within the school context and were simultaneously recorded using a digital recorder and an audio tape recorder (which ensured that I always had a back-up). During one of the interviews with the coordinators, the digital recorder did not function and I used the tape recorder only and the interview proceeded well. The participants were in control of the digital recorder and the tape recorder throughout the interview, i.e. they could choose when to leave the recorder on or when to turn it off. All interviews were transcribed verbatim by myself and sent to the participants for review and comments with a covering letter and a reply paid envelope (see Appendix 23). Once all of the transcripts were received, I followed the data analysis procedure as described in Section 4.10.

The pilot was limited by time constraints, selection of participants and recruitment strategies. However, it has enabled the collection of a rich set of data. In so doing, it has revealed the issues with the methods chosen and has provided me with the opportunity to refine these methods for the main study.

#### **4.5.3 Changes made following the pilot.**

Following analysis of the data and research proceedings of the pilot, it became apparent that a number of changes were required. These included fundamental changes to the study purpose and design, as well as technical changes to the methods.

Following the pilot, I decided to distribute information sheets (see Appendices 2 and 3) and consent forms in Maltese and in English (see Appendices 4, 5, and 6) to participants which included a deadline for return of the consent forms. I refined the observation schedule (see Appendix 1) to allow sufficient space for a diagram of the class set-up, and other information, such as unplanned events that could be used as data in relation to answering the research questions in this study. Indeed, adding this information provided further data and a long description of the context and events that occurred therein. During the pilot I had also attempted to record my observations in the classrooms by hand-writing them. On the final day of the observations I typed my observations directly onto my laptop, which proved to be a good time-saving strategy, which I used during the main study.

After I conducted and analysed the first few interviews, it became apparent that the interviews failed to elicit enough data to address the research questions about the participants' perceptions of the environmental impacts of climate change. It emerged that the participants lacked knowledge about this complex scientific issue.

Furthermore, the data from the pilot indicated that environmental sustainability was a more suitable issue to explore with children and adults for various reasons. First, the pilot showed that the environmental impact of climate change was a very abstract concept for the participants. Second, the participants in this pilot indicated that they had some ideas about environmental sustainability. Third, during the pilot, the coordinators complained that the environmental impact of climate change was a complicated issue for children and adults to understand. Fourth, language proved to be a barrier in discussing the issue because there is difficulty in translating the phrase “environmental impacts of climate change” into Maltese, which hindered participants from understanding this issue. So, after careful consideration and several readings of the pilot data I decided to focus the main study of this thesis on the exploration of young children’s and adults’ perceptions of environmental sustainability rather than on their perceptions of the environmental impacts of climate change. Environmental sustainability is not a less abstract concept than the environmental impacts of climate change, but environmental sustainability is more openly interpretable and less reliant on some kind of agreed scientific knowledge which one might either know or not know. Therefore, I made the appropriate technical changes to the information sheets, consent forms, interview schedules, and photographs, prior to conducting the main study. I also noticed that during the photograph interpretation the children got tired interpreting eight photographs, so I opted to use seven photographs during the main study.

The pilot demonstrated that spending three days of observations in the classroom (prior to conducting the interviews) with the children was not sufficient time to gather enough data about each child, to get to know each child, and for each

child to get to know me. I decided to prolong the observation period over the course of several days during the main study. I also decided that for the main study I would ask parents to allow me to conduct observations in their homes too, in order to get a holistic understanding of how young children constructed their understanding of environmental sustainability in different contexts rather than in one context – which in the case of the pilot was the school. In turn, this new theoretical understanding led me to make another change. In this pilot I considered each school to be the case study and for the main study I decided to consider each child as a case so that I could gain richer data about each child's perceptions of environmental sustainability.

During the interviews with the coordinators I tried to record notes in a notebook. However, due to my limited shorthand writing skills, my note-taking distracted the interviewees and it hindered me from thinking about necessary follow-up questions for clarification. Thus, I was unable to find ways to encourage the flow of the interview while attempting to take notes. At such instances I followed Stake's (1995) suggestion and listened to the participants more, took fewer notes and asked for clarifications. Since I have good typing skills, during subsequent interviews, I decided to type very brief notes in a word document on my laptop instead. I found brief note-taking directly on my laptop to be a helpful reminder when further follow-up was needed or something in particular stood out. After each interview, I stayed in the room and refined these notes to make sure I did not leave out any valuable data.

Various issues arose during the pilot. I discovered how difficult it was for parents to understand the concept of research and its usefulness in education. For example, a day prior to commencing the observations in case study 1, I spent a whole morning outside the school administration's office, hoping that some parents might

be interested to discuss the research with me but only one parent came along. She was interested in knowing if I was a social worker trying to take away her son. I did my best to explain my research to her and ultimately she decided that she was not interested in the research and she did not want her son to participate either. The following day, there was an incident, which made me reflect a lot on the whole concept of research and how it was perceived by parents. That afternoon I encountered a parent, who also happened to be an acquaintance, but who had no idea that I was the researcher conducting a study in her son's school, listed as case study 3. She told me that she had no idea what was going on at school and that she was baffled when the previous week she received a form to fill in. Unknowingly, she was referring to my consent form. She used a couple of swear words to describe her disgust at filling in forms. Some of her swearing was directed at the researcher, although she had no idea that I was the person conducting the study. During our conversation I informed her that I was the researcher but she did not give permission for her son to participate in the research. This incident taught me that some parents are genuinely unaware of what research is and they find it difficult to understand. In summary, these two events made me open my eyes to the possibility of harm induced on participants during the research process.

I feel that I benefited a lot from the process of establishing and running the pilot, and it changed me as a researcher. I initiated the pilot alone and I felt very nervous and anxious about it. During the first few interviews, I felt particularly uneasy because I was constantly comparing the participants' responses to my own knowledge about the issue under study. I was constantly judging the participants and I felt let down by the fact that they did not have much knowledge about the

environmental impacts of climate change. Upon reflection, I realised that indeed I was the one who needed to change perspective. I understood that if I were to explore the participants' perceptions from an interpretive perspective I had to accept each individual's perceptions of their own reality and I was neither to judge nor change that. This change in perspective helped me grow a lot as a researcher. I learned to listen to what the participants had to say and then I began to understand how and why they understood the issue the way they did.

## **4.6 The Main Study**

For the main study I contacted 20 State primary schools via email and invited them to participate in this research. Some schools declined my offer for participation. Several others promised to get back to me with a reply but never did, and my subsequent phone calls to these schools were never returned. Ultimately, after about 2 months, 2 primary State schools agreed to participate and returned their consent forms. These schools were engaged in the *EkoSkola* programme (MEPA, 2008) and had already obtained the Green Flag award.

### **4.6.1 Sampling and participants.**

Children between ages 3 and 7 were the main participants in this study. The choice for this age group stemmed from my personal interest and experience with young children in Malta during my teaching career. Another reason for this choice was the ease of access to children of this age range. Maltese children start school at age 3 and therefore it was more convenient to gain access to this age group through schools rather than trying to find families willing to allow their very young children to take part in this research. Furthermore, children between ages 3 and 7 in Malta do not sit for half-yearly and annual examinations, making access to this age group

through school easier than access to older children. Indeed, when I requested if I could gain access to older children, my requests were denied by the head teachers. Head teachers explained that since the Maltese education system is exam-oriented, they felt that my research would negatively affect the academic achievement of the children in the upper primary age group.

Participants were chosen based on their willingness to participate. Throughout the course of the research, I was aware that this choice might have influenced my study in various ways. I discuss these influences in Section 7.2.5. Once access was granted by school authorities, parents of children in Kindergarten 1, Kindergarten 2, Year 1 and Year 2 in both schools, were sent an invitation (see Appendix 14) and consent forms (see Appendix 15) which informed them about the aims and procedures of this study. I also informed them that I was inviting families to participate in this study if they were willing to grant me access to observe their child/children at home. The parents returned the consent forms within four days. Only one family showed interest in participating in this aspect of the study. As shown in Table 4.2, in my study there are two categories of settings: two State primary schools and one household.

**Table 4.2. The participating schools and household.**

School	Household
St. Nicholas Primary	
St. Mary Primary	Francesco's family

In this study, the household is referred to as the family home and the schools are referred to by the pseudonyms chosen by the head teachers: St. Nicholas Primary



and St. Mary Primary. Detailed descriptions of the physical settings in which each case study was conducted are given in Sections 5.1 and 5.7. This decision was taken because I felt that by providing a description of the context prior to telling the children's stories in Chapter 5, I would provide the reader with a detailed description of the holistic picture of each case. Another reason for doing so was because by providing a description of the differing settings, as well as the inclusion of the perceptions of the different participants (children and adults), I would be in a better position to illustrate the presence of the naturally occurring multiple realities that Yin (2009) described as characteristic of case study design.

Stake (2006) suggested that researchers can produce the best work if their multiple case studies include more than four but fewer than 10 cases. Stake (2006) also warned that if the number of cases increases to 15 or more, the cases may become too distinct and provide too much variability for the researcher and the readers to analyse. Following Stake's advice, my anticipation was that an invitation to the parents of all children in Kindergarten 1, Kindergarten 2, Year 1 and Year 2, would yield sufficient acceptances to form a group of approximately 10 children. The signed consent forms were returned (see Appendix 15) within four days. The head teacher at St. Nicholas Primary suggested that I should choose at least 4 more children as a contingency measure, in case some of them dropped out of the study. So, an initial sample of 14 children was formed. During the research, one parent withdrew her child from the study without offering a reason for her choice, and a child withdrew himself from this study during the observation period. An invitation to the teachers of these children to join the study followed (see Appendix 14). Teachers returned the consent forms (see Appendix 16) within three days.

Children whose parents gave consent for participation in this study were given a letter of information about this study (see Appendix 17) and I used pictures (see Appendix 7) to explain the research process to children. Then I asked them to sign a simpler version of the consent form (see Appendix 18) prior to participating in this research too. It is worth noting that a decision about the order of invitations to participants was discussed with the Department of Education and Employment in Malta, and I followed their instructions. Table 4.3 shows the final list of the 12 children, 10 parents, 5 teachers and one head teacher who participated in this study.

**Table 4.3. The participants.**

St. Nicholas Primary						
Child	Age	Gender	Parent	Class	Teacher	Head teacher
Sarah	3 years 4 months	F	Natasha	Kindergarten 1	Ms. A	Mr. D
Dalton	3 years 6 months	M	Jeanette			
Jazlyn	3 years 8 months	F	Josephine			
Denzil	4 years 5 months	M	Georgia	Kindergarten 2	Ms. P	
Ayida	4 years 7 months	F	Jacqueline			
Thea	4 years 9 months	F	Catherine			
Amie	5 years 6 months	F	Alison	Year 1	Ms. L	
Ylenia	6 years 5 months	F	Robert	Year 2	Ms. N	
John	6 years 5 months	M	_____			
Jaylee	6 years 7 months	F	_____			
Liam	7 years 2 months	M	Marija			
St. Mary Primary						
Francesco	7 years 6 months	M	Julie	Year 3	Ms. M	_____

My intent was to collect data between October and December 2012, for approximately 12 weeks. However, the study evolved in a different direction because I was asked by the head teacher at St. Nicholas Primary to conduct the study between 7<sup>th</sup> January and 26<sup>th</sup> April 2013 (excluding holidays), so that the children would have settled into their routine and the timing would be less disruptive for them. Despite the delay to my own schedule, access was central and I agreed to his suggestion.

Three weeks prior to starting the research, I organised a meeting at each school – for the head teacher, teachers and parents, during which I explained my role as a researcher and the research process. The meeting at St. Nicholas Primary was held in the school hall, while the meeting at St. Mary Primary was held in the head teacher's office, in the morning. During the meetings, I informed participants that they had a right to withdraw from the study at any time. Thereafter, the case studies were conducted between January and April, 2013, for 12 weeks. I also organised a separate meeting for the children in each school, where I explained the research process to them using the same procedures described in Section 4.5.2. Meetings with the children were conducted in an empty classroom in each school.

#### **4.7 Data Collection Methods**

My choice of data collection methods was influenced by my research topic, the research questions, the different theoretical perspectives described in Chapter 3, interpretive methodology, qualitative multiple case study approach and the sample in this study. The data collection methods are discussed below and included:

- a researcher's journal;
- observational field notes;

- conversational interviews with the children, which included photograph interpretation with children, children's drawing and interpretation of their drawings;
- semi-structured interviews with the head teacher, teachers and parents;
- document analysis

#### **4.7.1 Researcher's journal.**

My researcher's journal served as a means of critical reflection on the research process. It helped me to engage in an ongoing critical dialogue with myself as a researcher and to analyse my feelings and thoughts about the research process, my biases and how these were influencing the research, and what I might need to change about the research process. This encouraged me to continually strive to improve the research process and to provide focal points in my observations, analysis and writing-up phase later on. I also recorded my critical reflections on the ethical dilemmas that arose during the research and the decisions I had to take during the data collection period. These are included periodically throughout data presentation and discussion of the thesis.

As indicated by Merriam (1998), a journal can help the researcher learn more about the contextual variables that had bearing on the case and this was true for my research. During data analysis, the journal helped me to understand the contextual variables that might have influenced each child's perceptions of environmental sustainability, which were not apparent in the other data sources. Furthermore, as suggested by Stake (2010), journaling helped me in analysing the results and in dealing with the interpretation of certain issues by writing about them. It also helped me in writing the final report, as during the reflective process of journaling I came to

understand how to best write each case study and how to write each story in order to best portray each child's perceptions of environmental sustainability.

#### **4.7.2 Observations.**

Stake (1995) argued that observations help the researcher gain a better understanding of the case. Observations are time-consuming, subjective and an intuitive means of data collection (Boehm & Weinberg, 1987; Simpson & Tuson, 2003). The researcher needs to have an accurate perception of the potential sources of personal bias when conducting observations (Boehm & Weinberg, 1987). Merriam (1998) suggested that training and mental preparation set apart the systematic observer and the layperson doing unplanned observations. So, on the first day of the observations I tried to learn the names of all the children, parents, head teacher and teachers in each school. I attended school 5 days a week and I spent 6 hours a day observing children. I attended St. Mary Primary for 2 weeks and St. Nicholas Primary for 10 weeks. I attended the family home 2 days a week for 4 weeks, spending an hour-and-a-half at a time.

In my study, observations provided detailed information about the physical context and the daily activities of the children so that I would give the reader a vicarious experience of the case studies (Stake, 1995). I used an observation schedule (see Appendix 1) and the field notes were written in such a way that any person who read them would understand what was going on and be able to visualise the settings and the events that were described. I kept detailed field notes of the:

- physical environment, spaces, objects and resources, and time
- participants (children and adults) and their actions that were relevant to this study

- activities related to environmental sustainability
- images or photographs
- follow-up questions

My field notes contained only long descriptions because my more explicit interpretations of events were written in my researcher's journal. There were times during observations when immediate note-keeping was not possible, so in such instances I recorded brief notes on my voice recorder and then tried to write the notes as soon as I could on the same day, or just after the observation session to help me remember a particular event.

It was my aim to reduce reactivity, that is, to manage and understand my influence on the participants' behaviour as much as possible. Although reactivity during observations can never be completely eliminated, I used a number of techniques to become unobtrusive in the research environment. I followed Foster's (1996) advice and behaved in ways that blended into the school context by selecting my own physical position in the classroom as well as the positioning of recording equipment, and by dressing and behaving in ways that allowed me to blend in. During observations, I sat at a place designated by the teacher/parent, which was usually at the back of the room. In the yard, I had conversations with the children and the teachers but most of the time I stood in a corner where I could observe the children's behaviour while they were playing or participating in an activity.

The participants had an opportunity to read the field notes that were written for them individually, but they were not allowed to read the observations of other people unless permission was given by the third parties involved. Throughout this study, no adults asked to read the observation schedules but the children were

constantly curious about them. Children who were able to read wanted to read the observation notes about them, while younger children, who were not able to read yet, wanted me to read out the notes for them. There were instances when some children wanted to write their own notes as part of my observation schedule too. There was a time also when I had to negotiate with the children to get my belongings back, such as my notebook and pens. At times, this negotiation process was quite challenging and called for creative problem-solving techniques. The children were exerting power and agency over my belongings and over the data collection phase. While I wanted the children to feel part of the research I also needed my notes to record my observations. Sometimes the children dictated what I should write down in my notes. I appreciated these instances because the children were becoming part of the research process too. At other times, children asked me to change what I had written about them and only allowed descriptions that they approved of. I feel that these instances helped to reduce the adult-child power dynamic usually present in Maltese schools. Teachers commented that some children changed their behaviour during the observation period either to please me or because they felt uncomfortable with the recording devices. However, the reasons behind their change in behaviour remain unknown, not because I did not investigate the matter, but because these children refused to confide in me.

#### **4.7.3 Interviews.**

Interviews were a major source of data in my study. As suggested by Stake (1995), interviews provided me with data, which I could not observe. I conducted conversational semi-structured interviews with children (see Appendix 19), and semi-structured interviews with the head teacher (see Appendix 20), teachers (see



Appendix 21), and parents (see Appendix 22). Each interview was an intersubjective process, during which I tried “to uncover their lived world prior to scientific explanation” (Kvale & Brinkmann, 2009, p. 1). Indeed, these dialogues provided me with a lot of in-depth data about the quintain (Stake, 2006).

Kvale and Brinkmann (2009) described two types of qualitative interviewers: the “miner metaphor” and the “traveler metaphor” (p. 48). In the miner metaphor, it is believed that knowledge is already there and is waiting to be uncovered by the interviewer. The miner researcher regards interviews as a site of data collection separate from the data analysis. In the traveler metaphor, knowledge is explored by the interviewer together with the interviewees, a journey that leads to new knowledge that might even change the interviewer too. Kvale and Brinkmann (2009) further divided the traveler metaphor into two parts: the pilgrim, who is the meticulous researcher; and the tourist, who invents goals according to aesthetic criteria that are based on taste and lifestyle. In this research, I took the role of the pilgrim traveler, where my perceptions of environmental sustainability, the interviewing process and the data analysis process were intertwined in such a way that new knowledge was also constructed during the research process.

My interviews included a flexible set of main questions which were addressed in a particular order, constructed from the research questions, and included closed- and open-ended questions, probes and follow-up questions (Drever, 1995; Kvale & Brinkmann, 2009; Mason, 2002; Patton, 2002; Rubin & Rubin, 2012). These choices stemmed from realising that if the interviews were too closely directed, I might have not collected important and rich data because the participants might have been reluctant to speak. The main questions in each interview were designed to establish

the overall structure of the interview in order to gain as much data about the issue under study as possible. Following Rubin and Rubin's (2012) advice, these questions provided the scaffolding of the interview to enable me to answer the research questions from the perspective of the participants. Another piece of advice from Rubin and Rubin (2012) that I followed was the use of follow-up questions, which were used to gain depth, detail, rich information, to help me to assure thoroughness and credibility, and to help me explore themes. Follow-up questions were designed in response to comments made by the participants and were worded to reflect prior answers.

As indicated by Drever (1995), during the interviews I used prompts and probes to decide how much control I exercised during the interview. Prompts and probes were designed to help the participants to say what they wanted to say. The prompts were often open and directed towards what the participants knew but had not yet mentioned. However, as suggested by Drever (1995), these prompts were not intended to put words into the participants' mouths or pressurise the interviewee to come up with something. Rather these prompts were used to encourage the participants to talk and delve deeper into their memories. As suggested by Rubin and Rubin (2012), I used probing questions to close down the focus of the research. Specifically, probing questions were used to clarify my understanding of an issue or to make sure that I had understood what the participants already said.

Rubin and Rubin (2012) noted that the success of an interview depends on the researcher's ability to develop "a trusting personal relationship between the researcher and the interviewee that encourages open, honest, and detailed replies, ... In building an open and trusting relationship, researcher and interviewee work

toward forming ... a *conversational partnership*” (pp. 6-7). In my study, this conversational partnership was built on respect and trust between the participants and myself, where I valued each individual’s contribution and viewed it as reliable information. However, I was aware that this partnership was not a balanced relationship because I was in control of the progress of the interview session even if the participants somehow shaped the process of the interview by exerting power, for example, by withholding information.

#### ***4.7.3.1 Interview techniques for research with children.***

A major challenge of this study was how to interview children about their perceptions of environmental sustainability. Kvale and Brinkmann (2009) pointed out to the challenges of interviewing children are mostly created by the gap between the social worlds of the researcher and the child. Even between adults, and between researchers, environmental sustainability is considered an abstract concept, let alone for young children. So, several strategies were considered to address this issue. For this reason, I included creative data collection methods as a form of interviewing children because I thought these would appeal to young children. Veale (2011) described creative methods as, “those that draw on inventive and imaginative processes, such as in storytelling, drama and drawing. They can serve as constructivist tools to assist research participants to describe and analyse their experiences and give meaning to them” (p. 254). The research methods I used included:

- a puppet
- photograph interpretation
- children’s drawings and their interpretations

All of the children's interviews were conducted at school, except for the interview with Francesco which was conducted at his family home. This choice was based on the premise that interviews with children need to be conducted in a place that children are used to and feel comfortable in. Therefore, prior to conducting the interviews I asked the children where they wished to conduct the interview and I consented to their wishes.

Children's interviews lasted between 8 and 20 minutes. All interviews were digitally recorded and audio-taped with the permission of the children. Children had control of the digital and the tape recorder and were allowed to hear their own recordings after the interview. They were allowed to change any comments that they did not like. Some children asked to listen to the tape recorder several times because they considered it to be a very amusing activity. Two children, Jazlyn and Dalton, wanted to take the digital and audio recorders home, so I made an extra copy of the recording and gave it to the children to take home. Later the same day, children's interviews were transcribed verbatim by me. Children were sent a transcribed copy of their interviews for review and comments with a covering letter and a reply paid envelope (see Appendix 23), which they discussed with their parents at home and these transcriptions were returned to me within a week and without comments. This means that none of the children amended their interview transcripts.

#### *4.7.3.1.1 Puppet.*

An interviewing technique I used with children was a puppet. Persona dolls are sometimes used in research with young children. Persona dolls are life-size dolls, as tall as a 3- to 4-year-old child that are used to introduce difficult and controversial topics to young children in early childhood settings (Brown, 2001), for example to

raise awareness of discriminatory behaviours amongst children and adults. The personality of the doll is developed by the researcher. With a persona doll, the adult acts as both a voice and an interpreter (Brown, 2001). In this study I was not aiming to raise any awareness about an issue but rather to encourage the children to talk about environmental sustainability, a difficult concept for children to discuss. Therefore, I used a hand puppet instead of a persona doll.

The personality of the puppet (see Appendix 24) was developed by me, and I acted as both a voice and an interpreter of the puppet. In other words, the puppet was developed by me to act as a research tool to encourage another level of engagement between the children and myself as a researcher that would be fun and enjoyable for the children. I introduced the puppet as:

*Ġanni, the puppet*

Ġanni is a 5-year-old puppet from a small village in Comino (a small island, part of the Maltese archipelago). He is my assistant and he has come down to this school/home to meet you and to help me. He has a baby brother at home. Ġanni likes toys and his favourite toy is a bike and he also likes to read and to play outside.

Initially, I introduced the puppet by placing it in a corner of the classroom where the children usually played when they entered the classroom in the morning. The children were very surprised and excited to meet, play with and learn about the puppet. Although the children knew that the puppet was not real, they enjoyed the element of make-believe created by this puppet. All of the children (except Liam) were very curious and asked lots of questions about it.

#### *4.7.3.1.2 Photographs.*

As pointed out by Dockett, Einarsdottir, and Perry (2011), Meo (2010), and Zartler (2014), photographs in research with children are useful tools which support participatory elements, support children's engagement in research, and assist the researcher to gain children's perspectives. Photographs taken by the children can help them overcome the difficulty to verbalise their thoughts, particularly about abstract concepts and issues. Therefore, photographs may offer children the possibility to visualise the issue under study and children engage in conversations about the photographs, then the researcher and the children discuss the photographs together.

In my research, I was denied the opportunity of asking children to take photographs by the education authorities in Malta. Therefore, I chose to provide the photographs of some environmental issues, for the children to discuss. In so doing, I was aware that I might have provided my own influences on the children's perceptions of environmental sustainability. Furthermore, I was aware that I might have presented the concept of environmental sustainability from my point of view and might have positioned me as a controller of the children's space and time, thus reinforcing my role as a researcher. In order to try to minimise my influence on the children's perceptions I opted for photographs portraying a variety of environmental sustainability issues.

The photograph interpretation was conducted with each child individually. It consisted of showing each child a series of seven photographs (see Appendix 25) of different places in Malta and from around the world. These photograph

interpretation sessions were aimed at exploring the children's awareness of environmental sustainability.

#### *4.7.3.1.3 Drawings and their interpretations.*

According to Vygotsky (1971), art is closely related to children's thinking. Drawing activities are widely used in research with very young children (Clark & Moss 2011). Drawing was seen by Clark and Moss (2011), Veale (2011) and Zartler (2014) as a method that can offer insight into the representation of children's worldviews. Environmental researchers, Barraza and Robottom (2008) and Sorin and Gordon (2013), recommended drawing as a data collection tool as well, especially if children lack the linguistic capacity to adequately present their understandings of the environment during a conversational interview. Asking the children to draw provides almost no guidance for them and they can freely express themselves in their illustrations. This helps children provide a snapshot of their mental image of a particular concept in an unguided manner.

Following the photograph interpretation in my study, each child was invited to a table on which there were some blank A4 sheets of white paper and crayons. Children were asked to draw something that came to their mind that was related to the environment. They were free to draw as many themes related to the environment as they liked and were free to stop whenever they liked.

Drawing alone may not communicate the children's full meaning of a concept and very often children like to draw pictures and tell a story about their drawings too. As suggested by Veale (2011), free drawing provides visual data but it is the verbal recording of children's interpretations of their drawings that provides the data for interpretation. Young children's stories about their drawings offer tools for them to

organise and explain their complex viewpoints (Anning & Ring, 2004), which would otherwise be difficult to explain only in words. Indeed, storytelling of the children's drawings is another form of interview technique used by researchers to inform and enrich the data by providing a more holistic interpretation of the young children's perceptions of an issue. In my study, I chose to ask children to tell the story of their drawing in order to avoid providing my adult interpretation of children's drawings.

When the drawing activity was ready, children were invited to talk about their pictures, and I used the interview schedule (see Appendix 19) to guide me in our discussions. In most cases children explained the meaning of their drawings or made stories. Eleven children in this study drew a picture for me and only one boy, Liam, refused to draw. Children's drawings were scanned by me at home in the afternoon, on the same day of the interview, and were returned to the children during the following school day.

#### ***4.7.3.2 Interviews with parents, teachers and head teacher.***

Semi-structured interviews were conducted with parents (see Appendix 22), teachers (see Appendix 21) and head teacher (see Appendix 20). Although in my study I gave prominence to the children, the voices of the adults were valid and contributed to my understanding of the issue under study. It is worth noting, however, that no matter how well meaning and valid adults' views about children might be, adults cannot be assumed to give authentic accounts of the child's world. As discussed in Chapter 3, working within the NSC, in my thesis adults' views remained important but sat alongside, rather than in front of or in place of, children's perspectives. This perspective has guided the design and analysis of this study.



Most interviews were conducted at school, with the exception of two parents, Julie and Natasha, who chose to be interviewed at their home. The interviews, which lasted between 5 and 30 minutes, were digitally recorded and audio-taped and participants had control over the recorders. Later that same day, the interviews were transcribed verbatim by myself to create a text to be consulted, and subjected to critical scrutiny. Transcripts were sent to participants for review and comments with a covering letter and a reply paid envelope (see Appendix 23). All transcripts were returned to me by the participants within a week; only the head teacher made some comments on the returned transcript. During the interview, the head teacher gave some detailed information about the school and the Maltese environment which he then deleted from his transcript. He gave reasons for the deletions too, which he did not want me to quote in my thesis, for privacy reasons.

#### **4.7.4 Documents.**

The documents I had access to in this study were the NMC (Ministry of Education, 1999; Ministry of Education and Employment, 2012). Merriam (1998), Rubin and Rubin (2012), and Yin (2009) suggested that documents can be biased and incomplete. Therefore, documents in my study were not treated “as literal renditions of the facts but rather as people’s interpretations” (Rubin & Rubin, 2012, p. 27) of facts and events but were compared and contrasted with the rest of the data.

#### **4.8 Informed Consent**

In this study, I attempted to use informed consent. Danby and Farrell (2004) stated that in educational research, there is a concern about whether young children are competent enough to give informed consent or not. Gallagher (2009) argued that this concern is mainly due to questions about how much understanding young

children can have of the research process and of what they are consenting to when participating in research, and the unavoidability of power relations between adult and child, and between research and researched. To minimise the possibility of such concerns, I followed Kvale and Brinkmann's (2009) advice and provided participants with adequate information, including their right to withdraw, checking that they had understood what they were agreeing to, and how their consent or refusal to participate would be recorded.

Gallagher (2009) advised that parental consent to children's participation in research is crucial. I considered parents to be the primary gatekeepers and so their consent for their children's participation was requested. I opted for proxy consent both from the parents from the children. This was active consent rather than passive consent. Parents were asked to fill in the consent form, regardless of whether they were allowing their child to participate or not.

Children were also gatekeepers and their informed consent was part of the ethical procedure in this study. Consent and assent are connected to power relations between researcher and children. The associated legal differences involved are mostly related to the age of the children involved in the study. Obtaining assent, or the participants' passive acceptance or non-refusal (Heath, Charles, Crow, & Wiles, 2007), is not a legal requirement (Dockett, Einarsdottir, & Perry, 2009).

Nevertheless, I was aware that interpreting children's consent is complex and challenging, as their willingness to participate might come from a habit of always giving adults the correct answer. Therefore, to acquire informed consent from the children, I ensured that they knew, as far as it was possible given their young age,

what it was they were going to be doing and why. Nonetheless, I remained alert to children's verbal and other bodily expressions at all times.

#### **4.9 Anonymity and Confidentiality**

Protecting the anonymity of the participants was important. Anonymity can protect the participants but it can also facilitate the researcher's speaking in place of the participants without being contradicted and thus deny the participants a voice. Because of the small geographical size of Malta, the close relationships within the Maltese community, and the location of the schools, confidentiality could be assured but a promise of anonymity was problematic. This issue was easily resolved when participants chose how to be credited in this research.

To protect confidentiality, none of the data or results from individual schools, or from individual participants, was shared. This also helped to guard against misinterpretation of the data or researcher bias and provided confirmation about the accuracy of my interpretation of the information. Through briefing, debriefing and information about confidentiality the participants were informed about the purpose and the procedures of the study and they had access to their own interview transcripts and other materials related to their individual case study. The participants signed a consent form (see Appendices 15, 16, and 18) to allow subsequent use of the research material.

Stake (1995) suggested that researchers should have a data storage system. The use of number codes for tapes and transcripts, storage of my electronic data in a password protected memory key, and PC with anti-viral protection and firewall, helped maintain privacy of the data and confidentiality. In accordance with standard ethical procedures, all printed data were kept in a locker in my home office and only

I had a key to the locker. The data will be stored in my locker for a maximum period of five years, after which it will be destroyed so that no one can access it. Sensitivity was maintained in terms of not sharing confidential information about each school with the other school.

#### **4.10 Data Analysis and Reporting**

Data management and analysis in my study were influenced by an interpretive and qualitative methodology. As suggested by Merriam (1998), “Data collection and analysis is a *simultaneous* activity in qualitative research” (p. 151). The process of data analysis was continuous and simultaneous, and took place iteratively throughout the study. It commenced from the conceptualisation of the research through the entire data collection phase, and well into the interpretation and writing phases.

Several methods of data analysis were considered, for example Mason (2002), Marshall and Rossmann (2011), Merriam (1998), Miles and Huberman (1994), and Stake (1995, 2006). As Punch (2009) pointed out, there is no “single right way to do qualitative data analysis – no single methodological framework” (p. 171). So, I chose the data analysis techniques, which I felt were most suitable for my study. Initially, I found Miles and Huberman’s (1994) three-stream cyclical process of analysis helpful, in that first I reduced the data, then I displayed it, and then I analysed it. However, during this process I came across Marshall and Rossman’s (2011) seven phases of analytic procedures for qualitative data (see Table 4.4). Marshall and Rossman (2011) noted that each phase of the data analysis has: (a) data reduction, where data is reduced to manageable chunks; and (b) interpretation, where the researcher brings meaning and insight into the data. I found these procedures to

be more useful. Additionally, I also used some of Stake's (2006) multiple case study analysis procedures to help me interpret my data. Since each case study is a "specific entity" (Stake, 2006, p. 2), in my study analysis took place at two stages, first within case, and second, across cases. I used the procedures listed in Table 4.4 at every stage of the data analysis. This does not mean that Marshall and Rossman's (2011) procedures or Stake's (2006) are better or more accurate than Miles and Huberman's (1994). It simply means that I felt that I was able to bring my own perspectives to my interpretation using Marshall and Rossman's (2011) and some of Stake's (2006) analytic procedures.

**Table 4.4. The seven phases in qualitative analysis.**

1.	Organising the data
2.	Immersion in the data
3.	Coding the data
4.	Writing analytic memos
5.	Generating categories/themes
6.	Offering interpretations and searching for alternative understandings
7.	Writing the report

Source: adapted from Marshall and Rossman (2011, pp. 209–224).

### *1. Organising the data*

Initially, I was overwhelmed by the amount of data I had collected and I spent a lot of time organising them. Then, I decided to follow Stake's (1995) suggestion

and “spend the best analytic time on the best data” (p. 84), in order to keep each case study and the key issues in focus.

My field notes and researcher’s journal were organised according to the date of data entry. Initially, interviews were transcribed verbatim and were a record of the complete conversation with each participant. Since all interviews were conducted in Maltese, I decided to translate them in English. Given the nature of the conversations I recognised that sometimes there were large segments of the interview that did not relate to the research, for example, when one of the parents spoke about her financial problems. Therefore, I revised the transcripts and I omitted segments that were not related to the research.

The children’s scanned drawings were examined individually on my home PC. Each picture was magnified to make it more visible, especially where the drawing was very small. Magnification of the pictures helped me get vital data that would have gone unnoticed without this process. There were some pictures with pale colours and these were enhanced by colour contrasts for clarity only but the drawing was not altered in any way. Each child’s drawing was linked to its corresponding information from the interviews to create a data sheet (see Appendix 26), which included verbatim recordings of the child’s responses to my questions from the interview session next to the picture, on the same page. Space was left on the right-hand side of the data sheet to write codes and notes during later stages of the analysis. Pseudonyms, as indicated by the participants, were allocated for each case study. Data were saved in separate files, which were labelled with the child’s name, the school and the class each child was in.

## 2. *Immersion in the data*

I revisited and reread all the collected data several times, which increased my familiarity with the data. I used the research questions (see Section 1.4), and my literature review and theories (see Chapter 2 and Chapter 3), as guidelines for my analysis. At this stage, I logged data according to date and times when, the place where, and the persons with whom they were generated, as indicated in Table 4.5.

**Table 4.5. Log of data gathering activities.**

Date	Place	Activity	Who	What
23/01/2013	St. Nicholas Primary	Observations	Jazlyn	Observing the child
18/04/2013	St. Nicholas Primary	Interview	Ms. A	Understanding teachers' perspectives

Source: Adapted from Marshall and Rossman (2011, p. 211)

Initially, I attempted to analyse my data using NVivo™ software but I found that in so doing I was distancing myself from the data. I tried manual analysis and I found that this approach enabled me to work better with my data. In order to produce a holistic and cohesive description of each case study, I made multiple hard copies of the transcripts. Then, I cut out these transcripts into different sections and put each section to its corresponding place in the child's case, which enabled greater clarity of the data for each case. I found coding on hard-copy printouts, as suggested by Saldana (2012), more helpful because it gave me more control of and insight into the data.

### 3. Coding the data

After reading the literature, I formulated the following four questions to help me code the data:

- What type of finding is this?
- Was it an expected or an unexpected finding?
- How can this finding be organised?
- Which findings are most important to answer the research questions?

Initial coding (Charmaz, 2006) enabled me to identify the major concepts that emerged from the data. I used *in vivo* codes (Charmaz, 2006), that is, the codes emerged from the data, which were often words or phrases present in the participants' accounts. This step helped me "preserve participants' meanings of their views and actions in the coding itself" and these codes served "as symbolic markers of participants' speech meanings" (Charmaz, 2006, p. 55). *In vivo* codes were also used to help me produce potential themes from first impressions of the data. Lists of codes were developed from each case study.

When coding the data, at first I used short labels for the manually generated codes as suggested by Miles and Huberman (1994). I had to code and recode the data during the different cycles of the coding process. I used the cut and paste technique for the coding process. I cut the transcripts into smaller units of analysis, such as individual words, phrases, sentences or paragraphs. I pasted these text units onto cards, which I had to sort and re-sort often. I had to make sure that each text unit was traceable to its original participant (person who produced the text). Several hard copies of the interview transcripts were used because sometimes a code was



sorted into two or more different categories or themes later on. Data were reviewed to check if any aspects had been overlooked and additional or new codes emerged.

#### *4. Writing analytic memos*

Once the codes were developed, I began to interpret what I had learned and I developed a storyline that made sense. At this phase of data analysis, I followed Marshall and Rossman's (2011) advice and selected the most useful data that would best describe the issue under study and would answer the research question fully.

Attending to Marshall and Rossman's (2011) recommendation of memo writing, at the stage of the analysis I included memo writing, along with the coding, where I recorded all sorts of ideas that occurred to me during coding. Following Saldana's (2012) suggestion, analytic memo writing helped me document and reflect on the codes and the coding process, the proceedings of the process of inquiry, and the patterns, themes and sub-themes that emerged from the data. Drawing on Miles and Huberman (1994), I dated and titled my memos according to the key concepts being discussed, and linked them to the particular places in the field notes, analysis and summaries. During this analytic stage, I frequently asked myself whether my data was falling into a pattern or whether there was an emerging theme.

#### *5. Generating themes*

Once the codes could not be further subdivided, I tried to find which themes were emerging from the coding of the data in each case. I looked closely at the transcriptions of the interviews to generate and illustrate categories of meaning (Strauss & Corbin, 1997). Themes were created from codes that were grouped together under one theme, and a descriptive name was allocated to each theme. Then, I colour-coded the themes using coloured pens to underline units of text.

Themes and links between them were identified, modified and revised in order to be able to identify more broad themes. Eventually, some themes were refined and moved to new themes, some were rejected, while other sub-themes emerged.

I created a list of themes, and the codes these themes were derived from, for each set of participants which I grouped together. As suggested by Stake (2006), I examined each theme individually to see what the case findings provided, and I continued to remember the situationality of the case through its findings. The outcome is described in tabular forms in the final tables which show the most commonly identified concepts from the data: one for children (see Appendix 27), one for parents (see Appendix 28), and one for head teacher and teachers (see Appendix 29).

#### *6. Offering interpretations and searching for alternative understandings*

During the data analysis, I constantly compared the viability of the themes and explanations I came up with, and checked them against my data. When I established that little more could be gained from further data analysis, and categorical saturation was reached, I understood that no new information was being discovered about the themes. Therefore, the themes were dense and complex enough to capture all the variations in participants' perceptions of environmental sustainability. From the collection of data, and its analysis and synthesis, a picture emerged of what would characterise the perceptions of environmental sustainability and the contextual influences upon them.

Merriam (1998, p. 185) stated that “the fewer the categories, the greater the level of abstraction, and the greater ease with which you can communicate your findings to others.” Therefore, a final list of three major themes and several sub-

themes was created, as listed in Table 4.6. These themes and sub-themes will be discussed in Chapter 6.

**Table 4.6. Final list of themes created from children's, parents' and educators' data.**

Overarching theme	Sub-themes
1. Children's perceptions of the environment	<ul style="list-style-type: none"> <li>• The environment as nature</li> <li>• Sense of place and identity</li> <li>• Human-environment relationship</li> <li>• The environment as an asset</li> <li>• Fear for the environment</li> </ul>
2. Children's perceptions of environmental sustainability	<ul style="list-style-type: none"> <li>• Conservation of natural resources</li> <li>• Environmental responsibility</li> <li>• Major environmental sustainability issues of concern and proposed actions</li> <li>• Socio-cultural and economic dimension of environmental sustainability</li> </ul>
3. Contextual influences upon the children's perceptions of environmental sustainability	<ul style="list-style-type: none"> <li>• Child characteristics</li> <li>• Lost for words</li> <li>• Environmental worldviews and personal experience</li> <li>• Family</li> <li>• School</li> <li>• Inter-generational influences</li> <li>• The role of adults</li> <li>• The media</li> <li>• Politics</li> <li>• Culture</li> <li>• Religion</li> </ul>

### *7. Writing the report*

Once the data were analysed, I began preparing the case study report. As suggested by Stake (2006), I focused on each case study as if it were the only one. For this reason, I created a case study report for each child, which included the within-case findings, as presented in Chapter 5. In each case study I wanted to give

the reader what Stake (1995) called a “*vicarious experience*” (p. 63). So, I organised the case report in such a way that any reader could relate to the participants and the contexts, by providing them with long descriptions of each case. This resulted in an extensive report about each case. Then, I read the individual case reports again and applied the findings of situated experience in these cases to the research questions of the quintain (Stake, 2006) and I created the discussion of the data, as presented in Chapter 6.

#### **4.11 Trustworthiness as a Measure of Rigour**

While the measures of validity, reliability, and generalizability may be used to evaluate quantitative research, the rich and in-depth design of my study required a different type of measure. It required trustworthiness. While there is a debate in the literature about the description of “trustworthy” research (Patton, 2002, Yin, 2009), there is still a need to demonstrate to the reader that this is research of quality. I employed different strategies to establish trustworthiness in my study, as listed below, which in turn ensured transparency for enabling others to better understand the methodological approach adopted in my study.

##### *1. Understanding context and ethical researching*

Rather than seeking generalizability, in this research I explored each case in a specific time and context, using a range of data collection methods to provide insight into the participants’ perceptions of environmental sustainability and the contextual influences upon them. Understanding context and ethical co-construction were based on my desire to prioritise the children’s voices and to create a rich description of each case study. The observation and interview schedules were designed to allow for rich descriptions of the contexts under study.

All efforts were made to declare my subjectivity and reflexivity as a qualitative researcher, in order to address issues that might threaten the integrity of this study. Reflexivity was an appropriate criterion for helping to heighten my interpretive awareness. By clarifying my perspective and making my subjectivity known, I increased opportunities for myself as a researcher to critically examine the data from different perspectives and from an ethical point of view.

In an attempt to demonstrate trustworthiness, I strove to maintain transparency in the recording and reporting of this study. I illustrated how interpretations were made in each case study and I specified where these interpretations were made by children, by adults, or by myself. For ethical reasons, the case study reports were supported by evidence and description of methods used. Data were interpreted as accurately and as honestly as possible, and alternative interpretations were considered (Denzin & Lincoln, 2005; Patton, 2002).

## 2. *Triangulation*

The trustworthiness of this study was founded on the appropriateness of the methodologies chosen to investigate the quintain and answer the research questions. Triangulation was described by Denzin and Lincoln (2011) as “the display of multiple, refracted realities simultaneously” (p.5). The concept of triangulation does not only mean getting closer to the object of research, but also adding to the depth and breadth of our understanding of an issue (Denzin & Lincoln, 2005; Mason, 2002).

For triangulation purposes, and to add rigour to this study, data were generated from a variety of sources: children, parents, teachers, head teacher, researcher’s journal, and field notes. According to Stake (2006), triangulation helps

the qualitative researcher who is “interested in the diversity of perception, even the multiple realities within which people live. Triangulation helps to identify these different realities” (p. 38). In this study, triangulation helped me to identify the diversity the multiple realities both within the single case study as well as across case studies. Consequently, triangulation transported the verification and credibility of interpretation of the data presented in this study.

### *3. Describing assumptions and theories*

As discussed in Chapter 3, different theoretical perspectives influenced the design of this study. How these theoretical perspectives have informed this study have been explained and made explicit. Theoretical triangulation helped me understand how the different perspectives offered by participants were influenced by the community and by the context at large.

### *4. Describing research design and procedures*

Another method of ensuring trustworthiness in this study was to provide a clear description of the research design and procedures. An audit trail of the research process, including the analysis and reporting of the data, was provided and I engaged in a critical reflection and contextualised the meaning of the findings on the basis of my beliefs, values and socio-cultural background. As Aubrey, David, Godfrey, and Thompson (2000) suggested, an audit trail in qualitative research provides assurance that acceptable standards have been maintained and findings are consistent. The inclusion of raw data from the field notes, my researcher’s journal, interviews and specific references to the origins of the information in the raw data helped me to verify the interpretations offered. With this in mind, I wrote myself into the research

to explain the methodology, my position as a researcher and the process of the research as it evolved.

#### *5. Prolonged engagement in the field*

Prolonged engagement in this research was achieved by multiple visits to each site over a period of several weeks. For this reason, repeated engagements with each participant increased and this allowed for a balanced view of the research focus within the social contexts of each participant. The participants' perceptions, particularly the children's, were verified by being replicated several times during the data collection phase. Twelve weeks spent in the field provided detailed case studies and the data gathered were rich and extensive.

#### *6. Member-checking*

Member-checking after the data collection, helped improve the interpretation of the case reports. After collecting the data and drafting a report, I asked the participants to read the transcripts for accuracy and any possible misinterpretations. I wanted to make sure that the participants' voices were heard and that what I had written in each transcript was exactly what each participant wanted to say and what they meant.

I was aware that children might not have clearly understood what was written in the transcripts. Therefore, after the children's transcripts were returned to me by their parents, I decided to make brief report for the children about their findings too and sent it to each child. I asked the children to come back to me with any changes they wanted to make to the report but none of them wanted to make any changes.

### 7. *Peer debriefing*

I made arrangements with a knowledgeable colleague who revised my coding, case summaries, analytic memos and the final draft of the case studies.

## **4.12 Conclusion**

This chapter focused on outlining the interpretive methodological approach that I followed. It argued for a qualitative multiple case study to investigate the children's perceptions of environmental sustainability and the contextual influences upon these perceptions. Greater diversity in methodological approaches in ECEfS to include qualitative methods that prioritise the voices of children could alleviate concerns by providing valuable information as to how children develop their perceptions of environmental sustainability. This methodological choice was determined by the relationship between the research questions, and the nature of the qualitative multiple case study approach, which allowed for discovery, insight and an understanding of participants' perceptions.



## CHAPTER 5: MEETING THE CHILDREN

This chapter is the first of two chapters that present my findings. Following the theoretical and methodological suggestions of Merriam (1998), Miles and Huberman (1994), and Stake (2006), in this chapter I present the data displays in the form of 12 single case studies, where each child is introduced individually. In this chapter I attempt to display “the unique vitality of each case, noting its particular situation and how the context influences” (Stake, 2006, p. 39) the children’s perceptions of environmental sustainability. My intention is to present the data generated by each participant in order to give the reader enough information to better understand the “quintain” (Stake, 2006, p. vi). In so doing, this chapter lays the foundation for further analysis presented in Chapter 6. Therefore, Chapter 5 and Chapter 6 should be read together for the reader to gain a stronger sense of the depth of the data generated.

In this chapter, the case studies are presented in chronological order, starting with the youngest child first. First, I present the case studies of children attending St. Nicholas Primary. These are followed by the child attending St. Mary Primary. In keeping with case study design, the school contexts are described according to the case study being presented in order to set the scene for the reader, and to establish the context for further analysis that are presented in the next chapter. This is followed by the presentation of the data of the head teacher of St. Nicholas Primary. Then, I present the teacher’s data according to the year group the case study children are in, followed by the children’s case studies.

Following Miles and Huberman’s (1994) advice, I display my data visually at the beginning of each case study. I start each case study with a “demographic table”

(Creswell, 2012, p. 254), in which I present personal and demographic information about the particular child, the parent, head teacher and teacher, in the case study. Then, I present the child's context, followed by the child's perceptions of environmental sustainability. Whilst each case study profiles the child and his/her perceptions of environmental sustainability, the teacher's, head teacher's and parent's data are included when they are particularly relevant, in order to increase our understanding of what the child said. Each case study ends with my own reflections about the uniqueness of the case; these reflections are excerpts from my researcher's journal.

## **5.1 Context of the Study: St. Nicholas Primary**

### **5.1.1 The school.**

St. Nicholas Primary is a State primary school situated in a modern building with large indoor and outdoor play areas and landscaped grounds. The school hosts approximately 500 pupils from Kindergarten 1 to Year 6. The school has 10 kindergarten classes and 17 primary classes. St. Nicholas Primary is an *EkoSkola*, with a holistic healthy lifestyle policy, including the Walking Bus campaign, where children would walk to school in an organised manner guided by parents in order to promote sustainable and healthy transport to school. During the data collection period, the school was participating in a recycling competition. This was a local recycling competition in which the school that recycled the most during a whole school year would win a prize.

### **5.1.2 The classrooms.**

The classrooms at St. Nicholas Primary are planned in a homogenous way. Each is a large square-shaped classroom, bounded on two sides by windows, making

them very bright rooms. Each classroom is divided into different areas: the social corner; the teacher's corner; the reading corner; the subjects' corner (where Maltese, English, Maths, Religion, Social Studies and Science copybooks and workbooks are kept). The desks are divided into different groups of four children at each table. The teacher's desk is at the head of the classroom in front of the interactive whiteboard. Next to the teachers' desk there is a small open cupboard, used as a library. Beside the door there are two mini recycling bins, one for plastic and one for paper.

## **5.2 The Head Teacher**

Mr. D, the head teacher, had been working in the administrative section of this school for almost 9 years 6 months. He said that he had a master's degree in education. He took great pride in showing me around the school and made me feel welcome every time I visited the school during the fieldwork. Teachers, janitors, parents and children told me that they had a lot of respect for him and they made many positive comments about his work in this school during the fieldwork and the interviews. I was allowed to take some photos (as shown in Figures 5.1 to 5.8) of the school building and the children's activities.



Figure 5.1. *EkoSkola* award on display in a school corridor.



Figure 5.2. *EkoSkola* and Nature Trust (Malta) awards on display in a school corridor.



**Figure 5.3. Pro-environmental activities at the school entrance.**



**Figure 5.4. Recycling boxes in one of the school's corridors, which were made out of used boxes and painted by children.**



**Figure 5.5.** A room at the back of the school building used for recycling material, as part of the school's recycling competition.



**Figure 5.6.** A reminder on the switches for users to turn off the lights when leaving the room.



**Figure 5.7.** Signs on toilet doors as part of the school's participation in the Catch the Drop campaign, aimed at teaching water conservation practices.



**Figure 5.8.** Signs on toilet doors as part of the school's participation in the Catch the Drop campaign, aimed at teaching water conservation practices.

During the data collection phase, Mr. D frequently discussed his interest in environmental sustainability with me. An interview with Mr. D was conducted in his office at school. During the interview, he described the environment as being made up of the balance between the natural and the human-made environment, and environmental sustainability as protecting nature and natural resources for the future. In fact, he talked about various local and global environmental issues that concerned him, including air pollution and the lack of natural rural areas in Malta.

Mr. D said that in the previous school year (2012) the Education Department had issued a policy where schools were asked to spend 10% of the government's funding in order to implement strategies that would reduce the school's carbon footprint. He said that teachers in his school discussed environmental activities briefly during staff development meetings, which took place once a term, after school hours, and lasted for an hour and a half. He stated that he organised various school activities to raise awareness of environmental issues amongst children, teachers and parents, out of his own interest, because he believed that educating children could contribute towards environmental sustainability. The activities he organised included the *EkoSkola* programme; school's recycling competition; Flick the Switch campaign (to teach children to save energy); Catch the Drop campaign (to teach children to save water); sending emails to parents instead of using printed paper; using a water reservoir to collect rainwater; and organising the Walking School Bus. He told me that he liked to tell stories related to environmental issues during the morning assembly because he believed stories appeal to children, (particularly when he included himself in the story and even made fun of himself,



much to the children's amusement). He also added that stories are an effective way of teaching children about difficult concepts.

Mr. D tried to include the local business community in the school's environmental programmes because he said that the school had limited finances. He emphasised that time and finances were barriers to environmental sustainability activities at school. He believed that the school environmental activities were a major influence on children's perceptions of environmental sustainability.

### **5.3 Case Studies in Kindergarten 1**

#### **5.3.1 The teacher.**

Ms. A taught children between ages 3 and 4. An interview with Ms. A was conducted at school. She stated that she had a tertiary certificate in pre-school education and had been a kindergarten teacher for 11 years. When I asked Ms. A to define the environment, she described it as nature and she described environmental sustainability as protecting natural resources. She emphasised keeping the natural environment clean. She was very concerned about local and global environmental issues, such as the excessive use of aerosol sprays; air pollution, rubbish and recycling in Malta; and the global issue of sea pollution and its effects on humanity. She said that she tried to use less sprays and recycle more. Ms. A had small recycling bins in the classroom too. However, during the observations I noticed that she never encouraged the children to recycle. Furthermore, she used a lot of paper and she never turned the lights off when everybody left the room. Ms. A declared that she never discussed environmental issues in the classroom because she believed the children were too young to understand; she added that adults were responsible for dealing with environmental issues. She also said that she did not have the training

and resources to include ECEfS in her practice. For this reason, Ms. A said that she followed the school's environmental and *EkoSkola* activities. Ms. A said that children's ideas about environmental issues were influenced by what they saw on the Internet and by books.

### 5.3.2 Sarah's case study.

#### 5.3.2.1 Profiling Sarah.

**Table 5.1. Sarah's demography.**

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Sarah	3 years 4 months	F	Natasha	Kindergarten 1	Ms. A	Mr. D

Sarah (see Table 5.1) lived with her parents and her 6-year-old brother. Her brother attended a Church school. Prior to conducting the observations and interview with Sarah, Natasha commented that Sarah did not like to draw. Upon hearing this comment, Sarah jumped out of her chair and insisted that she wanted to draw for me. Observations of and the interview with Sarah were conducted at school. Natasha and Ms. A described Sarah as a very shy girl. During the data collection, Sarah constantly followed me wherever I went. During the interview she did not answer some of my questions.

#### 5.3.2.2 Sarah's home.

Natasha was 32 years old. Interview with Natasha was conducted at her home but I was not given access to conduct any observations at the family's home. Natasha said that she worked from home on a part-time basis. When I asked Natasha

to define the environment, she described it as being made up of nature, the human-made environment and noise pollution. Natasha emphasised that nature was the environment that was created so perfectly by God and was ruined by humans. She made direct reference to the teachings of the Roman Catholic religion about God's perfect creation of nature.

Natasha stated that she believed that people were responsible for environmental sustainability, which she defined as protecting the natural environment. Natasha insisted that she was mostly concerned about noise pollution and that she and her family led a very sustainable lifestyle and took various pro-environmental measures. During the interview, she recounted how over the years the family made some renovations to their home to make it more energy-efficient. For example, she told me about how the family had availed themselves of a number of environmental schemes issued by the Government of Malta in order to construct a water reservoir and install solar water heater, solar panels, and energy-saving lighting at their home. She explained how these environmental schemes would repay a small percentage of the cost incurred by the family in their effort to make their home more sustainable. Natasha made sure that everyone in the family recycled too. Natasha confessed that initially she was motivated to take pro-environmental actions by her husband, to safeguard the environment and for the financial benefits too. She said she learned most of what she knew about the environment either from the radio, television or the Internet.

Natasha described an instance when Sarah constantly nagged her to save water because she had learned about it at school, to the point where Natasha had no other choice but to do what Sarah instructed her. Eventually, saving water became a

habit the family adopted. Sarah indicated that she learned a lot about the environment from television because she watched a lot of cartoons. She mentioned watching *Go, Diego, Go!* and *Dora the Explorer* cartoons about recycling on the Disney Channel. Natasha said that she attributed most of Sarah's learning about the environment to school and to television.

However, Natasha pointed out that she did not talk to Sarah about environmental sustainability, or about anything related to the environment, because she believed that Sarah was still too young to understand. This was given as an explanation for why at home Sarah recycled only papers and plastics even though the family recycled almost everything they could. However, during the interview Sarah showed knowledge of recycling metal, glass, paper and plastics.

Natasha explained that she and her husband also felt that it was more important to focus all their attention on their son rather than on their daughter because Natasha stated that, "Sarah is a girl and she does not need to know anything about the environment and sustainability." Specifically, Natasha explained that both parents taught their son about environmental sustainability because they felt it would be useful for his future employment as an adult but they did not teach or talk to Sarah about environmental sustainability because she was a girl. Yet, Natasha believed that education was the best way to teach children about environmental sustainability.

#### ***5.3.2.3 Sarah's perceptions of environmental sustainability.***

Talking about her drawing (see Figure 5.9), Sarah discussed the environment as follows:

Puppet: What did you draw here?

Sarah: A tree.

Puppet: Why?

Sarah: No answer.

Puppet: Is this the environment?

Sarah: Yes.

Puppet: Why?

Sarah: Because they (trees) give us food.

Puppet: You mean fruits?

Sarah: Yes. They give us food.



**Figure 5.9.** Sarah's drawing of the environment.

Although Sarah said that trees are good for people because they provide food, at another instance during the interview she said:

Sarah: People can chop down trees.

Puppet: Why?

Sarah: People need to build houses.

Puppet: And do people need trees to build houses?

Sarah: Yes.

Later Sarah described environmental sustainability as the way people take care of nature.

During the interview Sarah said that there were too many cars in Malta, which she believed led to too many accidents. Sarah perceived cars in a negative way because of the traffic jams and traffic accidents. Here Sarah was talking from personal experience because she said her father had recently been involved in a car accident and was badly hurt. When I asked how she travelled to school, she replied that her mother drove her to school every morning. In fact, Sarah complained about the traffic situation around the school area and said that she did not like to get stuck in traffic.

Mr. D encouraged children to recycle. Both Mr. D and Ms. A confirmed that Sarah participated in the school's recycling activities. In fact, during the interview Sarah proudly mentioned recycling as a pro-environmental action she carried out on a daily basis. During the photograph interpretation session, Sarah identified the recycling bins and was able to attribute the correct colour to the correct recycling material. Sarah spoke to me about the need to recycle, (mostly paper, plastic, glass and metal) as a way of protecting the environment.

During observations I noticed that at school Sarah recycled plastic and paper in the appropriate recycling bins and she even recycled her lunch leftovers in the school compost bin. When I asked why she was throwing the different items in different bins, she told me that was what she had learned to do so at school and at home too. Ms. A too commented that “Sarah is very keen on recycling, and she does it all alone.” During one of my observations in the classroom I noticed Sarah drawing Ms. A’s attention to her wasting too much tissue paper. Sarah also commented about the fact that although the family recycled at home, they did not make compost at home.

#### ***5.3.2.4 Reflections on Sarah’s perceptions of environmental sustainability.***

At the time of the data collection, Sarah’s language and drawing skills were relatively limited. At times she found it difficult to express her ideas about environmental sustainability. But Sarah’s and Natasha’s accounts of environment and sustainability can be compared. Unlike Natasha, Sarah did not include the Roman Catholic religion in her account of the environment. However both attributed the responsibility for environmental sustainability to humans. Recycling was mentioned by Sarah, Natasha, and Mr. D as a way of preserving nature and working towards environmental sustainability.

Sarah frequently drew on her personal experience within the local context to illustrate her concerns with some of the local environmental issues, particularly traffic in Malta. But television, particularly the *Go, Diego, Go!* and *Dora the Explorer* cartoon series, also played a role in teaching Sarah about recycling. Sarah tried to emulate the behaviour of these animated figures at home and at school.

At home and at school there were good role models of pro-environmental behaviours, even if there were some conflicting messages in and between these contexts, for example, between Mr. D's and Ms. A's engagement with environment or environmental sustainability, and the rather gendered approach of Sarah's family. Despite this complexity Sarah still managed to develop her own perceptions of environmental sustainability and revealed both intergenerational and contextual influence. Sarah learned about the importance of environmental sustainability directly and indirectly in both contexts. Sarah worked between contexts, for example, by encouraging the family to save water because she had learned about this issue at school.

### 5.3.3 Dalton's case study.

#### 5.3.3.1 Profiling Dalton.

**Table 5.2.** Dalton's demography.

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Dalton	3 years 6 months	M	Jeannette	Kindergarten 1	Ms. A	Mr. D

Dalton (see Table 5.2) was described by Jeanette and Ms. A as a very quiet boy. During the data collection period, Dalton hardly talked to me unless some other child talked to me first. During the interview, Dalton was very quiet and frequently replied, "I do not know", to many of my questions. Observations of and the interview with Dalton were conducted at school.

#### 5.3.3.2 Dalton's home.



Jeanette was 30 years old. An interview with Jeanette was conducted at school. She said that she worked on part-time basis at her father's grocer's shop. During the interview Jeannette described the environment as nature and environmental sustainability as "keeping the Earth clean". She expressed some very emotionally charged statements with regard to how unsustainable practices have led to the environmental issues the world is facing today. She expressed her concern about local and global environmental issues, such as overdevelopment in Malta and her preoccupation with the war in Syria. She said that these issues negatively impacted the well-being of the environment and humanity worldwide.

Jeanette said that recycling was the most environmentally sustainable action her family was engaging in and described it as an attempt to "reduce waste and keep the environment clean". Jeanette talked about how she recycled plastics, paper, metal and glass and how she made her own compost at home. Even though Jeanette felt that Dalton was still too young to learn about the environment or sustainability, she was teaching him how to recycle paper. Jeanette said that she was proud that both she and Dalton participated in the school's recycling competition by bringing the recyclable material from home to school most mornings.

#### ***5.3.3.3 Dalton's perceptions of environmental sustainability.***

Talking about his drawing (see Figure 5.10), Dalton discussed the environment as follows:

Puppet: What is this?

Dalton: This is the environment.

Puppet: What is this (pointing at his drawing)?

Dalton: The trees, flowers and birds. (And here he asked me to go back to his classroom.)



**Figure 5.10. Dalton's drawing of the environment.**

Dalton talked about his personal experience of traffic issues in Malta, especially on his way to school and said that he did not like traffic because, “We [i.e. he and his family] get stuck in traffic every day.” Dalton also said that he hated exhaust fumes because he believed they were harmful for human health. He specified that, “Exhaust burns our skin and we go to hospital.”

During the interview Dalton did not talk about recycling, but during the observations I noticed that at times he recycled paper and some plastics. Ms. A confirmed that Dalton recycled and she also said that he frequently turns off the

lights before leaving the room. Dalton mentioned only television as a source of information about the environment, and this was also confirmed by Jeanette.

#### ***5.3.3.4 Reflections on Dalton's perceptions of environmental sustainability.***

At the time of the study Dalton had limited language and drawing skills, which might have hindered him from expressing his ideas clearly, yet he still provided me with some valuable data. Dalton's and Jeanette's data shared some commonalities, for example, both described the environment as nature. Their data also shared some differences. While Dalton was concerned about the local traffic situation because he was talking about his personal experiences, Jeanette was concerned about different local and global environmental issues.

Dalton drew on his personal experience to discuss certain environmental issues of concern to him. Dalton's perceptions of environmental sustainability revealed contextual influences. At home and at school there were good role models of pro-environmental behaviour, even if Jeanette and Ms. A thought Dalton was too young to know or be concerned about environmental sustainability. At Dalton's home and school there seemed to be continuity of similar pro-environmental behaviours: for example, taking recycling material from home to school in an attempt to help the school win the recycling competition.

### 5.3.4 Jazlyn's case study.

#### 5.3.4.1 Profiling Jazlyn.

**Table 5.3.** Jazlyn's demography.

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Jazlyn	3 years 8 months	F	Josephine	Kindergarten 1	Ms. A	Mr. D

Jazlyn (see Table 5.3) was described by Ms. A as having an extensive vocabulary and as being very good at expressing her ideas. In contrast, during the interview Jazlyn was very quiet and did not talk much. An interview with and observations of Jazlyn were conducted at school.

#### 5.3.4.2 Jazlyn's home.

Josephine was 45 years old. An interview with Josephine was conducted at school. Josephine described herself as a housewife and had three children: two older boys and Jazlyn. Josephine said that she left school after compulsory primary education. Josephine complained that the family lived in an apartment, which was too small for a family of five, and with her husband's minimum wage they could not afford any better.

Josephine discussed the environment as nature and environmental sustainability as the way people care for the natural environment. During the interview, Josephine insisted that people were responsible for conserving the natural environment but she declared that her family did not consider environmental sustainability to be important. For this reason, she said that she did not take any pro-environmental measures at home, but she was aware that Jazlyn did.

Josephine said that Jazlyn constantly talked to her about the school's recycling activities and about the need to save water but Josephine said that having food on the table was more important for her family than recycling or saving water. This was confirmed by Jazlyn who said, "My mummy does not care when I tell her to save water or recycle". Half-way through the interview Josephine asked me to stop interviewing her because she said that she was more interested in talking about her social problems than about environmental sustainability.

#### ***5.3.4.3 Jazlyn's perceptions of environmental sustainability.***

Talking about her drawing (see Figure 5.11), Jazlyn discussed the environment as follows:

"We take pictures of our home with mummy and daddy."

She further explained:

Puppet: What did you draw here?

Jazlyn: A tree and the sea.

Puppet: Why did you draw a tree and the sea?

Jazlyn: Because I have trees at home and we take care of them.

Puppet: Why do you take care of them?

Jazlyn: Because they make grapes and we take grapes in a bag and we eat them when we go to the beach. (And she was silent afterward)



**Figure 5.11. Jazlyn’s drawing of the environment.**

During the interview Jazlyn said that both adults and children need to take care of nature but she also admitted that adults were more responsible. As Jazlyn explained to me, adults had the responsibility to teach children how to care for the environment.

Jazlyn stated that Mr. D had taught her about recycling and that she only recycled at school. During the photograph interpretation Jazlyn called the recycling bins “buckets for recycling”. Jazlyn said that she recycled at school but her mother did not allow her to recycle at home.

#### ***5.3.4.4 Reflections on Jazlyn’s perceptions of environmental sustainability.***

Despite being described as an articulate girl, there were times during the interview when Jazlyn struggled to find the right words to fully express her ideas. Furthermore, her drawing skills at the time of the data collection were very limited.

A commonality in this case study was that Jazlyn, Josephine, Ms. A and Mr. D attributed responsibility for caring for the environment to humans. Financial problems hindered Jazlyn's family from engaging in any pro-environmental behaviour at home. Jazlyn tried to encourage her family to adopt some water-saving strategies and to recycle, which she had learned at school, but apparently the family had no interest in this. However, Jazlyn still managed to construct ideas of environmental sustainability and has learned what pro-environmental behaviour was expected of her at home and at school, and she acted accordingly.

## **5.4 Case Studies in Kindergarten 2**

### **5.4.1 The teacher.**

Ms. P taught children between ages 4 and 5. An interview with Ms. P was conducted at school. She stated that she held a BTEC national diploma in children's care, learning and development and had been teaching this age group for 2 years. When during the interview I asked her to describe the environment, she included both the natural and the human-made environment in her definition. She defined environmental sustainability as people taking care of the natural environment. She also discussed her concern about local and global environmental issues, such as the burning of fossil fuels and its effects on climate change and talked about the use of renewable energy sources, such as solar energy and solar panels, particularly in Malta.

During the observations I noticed that Ms. P frequently reminded children to turn off the lights before leaving the room, as well as to reuse and recycle different materials, save water, and she encouraged children to use their personal cloth towel

instead of paper towels. Ms. P stated that she believed that adults were responsible for dealing with environmental issues. She said that she lacked professional development in ECEfS. However, she proudly stated that despite the vast syllabus, curriculum constraints and lack of time, she tried to teach children about environmental issues during her lessons because she believed that young children were capable of taking pro-environmental actions too. During observations I noticed that she included learning about environmental sustainability during crafts lessons, where the children used recycled material to make crafts.

Ms. P said that children's perceptions of environmental sustainability were influenced by television, radio and the *EkoSkola* programme. She said that her ideas about the environment were influenced by the *EkoSkola* programme, television and the children's families.

#### 5.4.2 Denzil's case study.

##### 5.4.2.1 Profiling Denzil.

**Table 5.4. Denzil's demography.**

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Denzil	4 years 5 months	M	Georgia	Kindergarten 2	Ms. P	Mr. D

Denzil (see Table 5.4) was described by Ms. P as an intelligent and obedient boy, who could express himself well for his age. During the study, he was able to



express himself very well in Maltese and in English. An interview with and observations of Denzil were conducted at school.

#### ***5.4.2.2 Denzil's home.***

Georgia was 29 years old and a mother of two. An interview with Georgia was conducted at school. Georgia said that she was enrolled as a part-time mature student at the University of Malta, reading for an honours degree in social work, while her husband was in full-time employment.

When I asked Georgia to define the environment, she defined it as nature that also included humans. She defined environmental sustainability as people caring for nature and limiting their use of finite natural resources because she believed that, “People need to try to limit the amount of natural resources that they use in order to preserve them for future generations.”

Georgia said that she was concerned about traffic and limestone quarry dust in Malta because she believed that these two human activities caused a lot of air pollution and posed a lot of health risks to people. Similar views and concerns were expressed by Denzil when he said that too many cars were creating lot of problems in Malta, such as exhaust fumes, air pollution, and traffic accidents. Similarly, Denzil also mentioned dust from limestone quarries as causing air pollution and being hazardous to human health around the world.

Georgia said that even though she was busy with her studies, she tried to recycle at home and to save water and energy. This was confirmed by Denzil who added that he usually visited the recycling sites with his parents, but at the time of the study the family was bringing their recycling material to school as part of the school's entry in the recycling competition. Denzil was aware of the need to

conserve water and energy too. During the observations he constantly spoke to me about the importance of turning off the lights when leaving the room, at home and at school. This was confirmed by Georgia; she said that she carried out these pro-environmental activities for financial and environmental reasons.

Georgia said that she was very happy with the environmental learning that was taking place at school, but she added that she wished the children were given opportunities at school to visit natural sites more often.

#### ***5.4.2.3 Denzil's perceptions of environmental sustainability.***

When I asked Denzil to explain what the environment meant to him, he said that he did not know the meaning of the word “environment” but during the photograph interpretation he said that the environment was made up of nature and it included humans.

Talking about his drawing (see Figure 5.12), Denzil discussed the environment as follows:

Puppet: What can you tell me about your drawing?

Denzil: That is a boy.

Puppet: What is he doing?

Denzil: That's me but I cannot move on this paper.

Puppet: What would you do if you could move?

Denzil: I would go outside and walk here and there and see the trees and the flowers and collect some fruit to take home.

Denzil talked about the environment as sustaining life because, “It's the place where we get food to cook in our kitchen.”



**Figure 5.12. Denzil's drawing of the environment.**

During the photograph interpretation, Denzil defined solar panels as a swimming pool. When I indicated that those were solar panels, he said that they were used for electricity but he had never seen any solar panels in real life.

During the interview Denzil said that “The Earth is dirty”. He further explained that, “Smoke and exhaust make the place dirty. That is not good. Smoke is not good.” Here, he was making reference to the grey or black smoke coming out of chimneys and vehicles. Denzil said that he liked to walk to school whenever his mother was not busy because according to him walking to school was fun and it did not cause air pollution.

Denzil believed that his parents were responsible for environmental sustainability because:

Denzil: Mums and Dads should take care of everything.

Puppet: Even the environment?

Denzil: Yes.

Denzil said that he learned about the environment from Mr. D, Ms. P, his parents, and television. During the observations and during the interview he said his parents taught him to conserve water and energy, to eat healthily and to recycle. He said that at school he learned to recycle too. Denzil also made reference to a cartoon series on television called *Go, Diego, Go!* and *Dora the Explorer* on Disney Channel, where these two characters discuss recycling. He also told me how he wanted to be like Diego, the cartoon character in this TV series, and so Denzil said that he was proud that he recycled like Diego too.

#### ***5.4.2.4 Reflections on Denzil's perceptions of environmental sustainability.***

At the time of the study, Denzil had good language and drawing skills, and he was able to express his ideas well. Denzil, Georgia, Ms. P and Mr. D shared some similar interest in environmental issues. They attributed the responsibility for environmental sustainability to people. Denzil frequently drew on his personal experience within the local context to illustrate his concerns for air pollution, traffic and quarry dust in Malta. Denzil described smoke as a cause of air pollution – but he was referring to the dark colour as being harmful rather than the carbon dioxide emissions.

At school and at home Denzil has had good role models of pro-environmental behaviours, and there was continuity between the pro-environmental behaviours within these contexts. For example, contextual continuity was observed when Ms. P encouraged children to create crafts using recyclable material, when Georgia and Denzil recycled so that they would help the school win the recycling competition by

bringing recycling material to school, and when within the two contexts Denzil was taught to save water and energy. This helped develop Denzil's perceptions of environmental sustainability.

Television, particularly the cartoon series *Go, Diego, Go!* and *Dora the Explorer*, played an important role in teaching Denzil about recycling and Denzil even emulated Diego's actions with regard to recycling at home and at school.

### 5.4.3 Ayida's case study.

#### 5.4.3.1 Profiling Ayida.

**Table 5.5.** Ayida's demography.

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Ayida	4 years 7 months	F	Jacqueline	Kindergarten 2	Ms. P	Mr. D

Ayida (see Table 5.5) was described by Ms. P as a shy and quiet girl, who did not interact much with her peers, except with Thea (see next case study). An interview with and observations of Ayida were conducted at school.

#### 5.4.3.2 Ayida's home.

Jacqueline was 31 years old. An interview with Jacqueline was conducted at school. Jacqueline said that she was a married mother of two: Ayida and a 2-year-old girl and worked on a part-time basis from home.

When I asked Jacqueline to talk about the environment, she framed it as being made up of the natural and the human-made environment. She stated that both environments were important for humans in order to live a healthy and balanced life.

During the interview Jacqueline told me that she never thought about environmental sustainability because she believed that she was not responsible for it and she did not wish to tell me what environmental sustainability meant to her.

Jacqueline said that she was concerned about air pollution in Malta, particularly air pollution caused by power stations. She described how she believed the two local power stations were harmful for people's health because she said that a local political leader during a public meeting said that, "Maltese power stations are factories of cancer." In fact, she repeated her statement three times to make sure that I got her point.

Like her mother, Ayida too was concerned about the health hazards of the local power stations, particularly the one in Marsa. Ayida said that power stations were, "Factories producing cancers and giving them to people".

Jacqueline believed that Ayida was still too young to learn about environmental sustainability and believed that, "It is not fair to burden young children with these problems (environmental issues)." Jacqueline said that it would be wiser to teach children about environmental issues when they were older, "... like for example, when the children are in secondary school so that they could understand more what these issues are and how to go about them."

#### ***5.4.3.2 Ayida's perceptions of environmental sustainability.***

When asked to describe the environment, Ayida described it as being made up of, "the flowers and the trees." Talking about her drawing (see Figure 5.13), Ayida discussed the environment as follows:

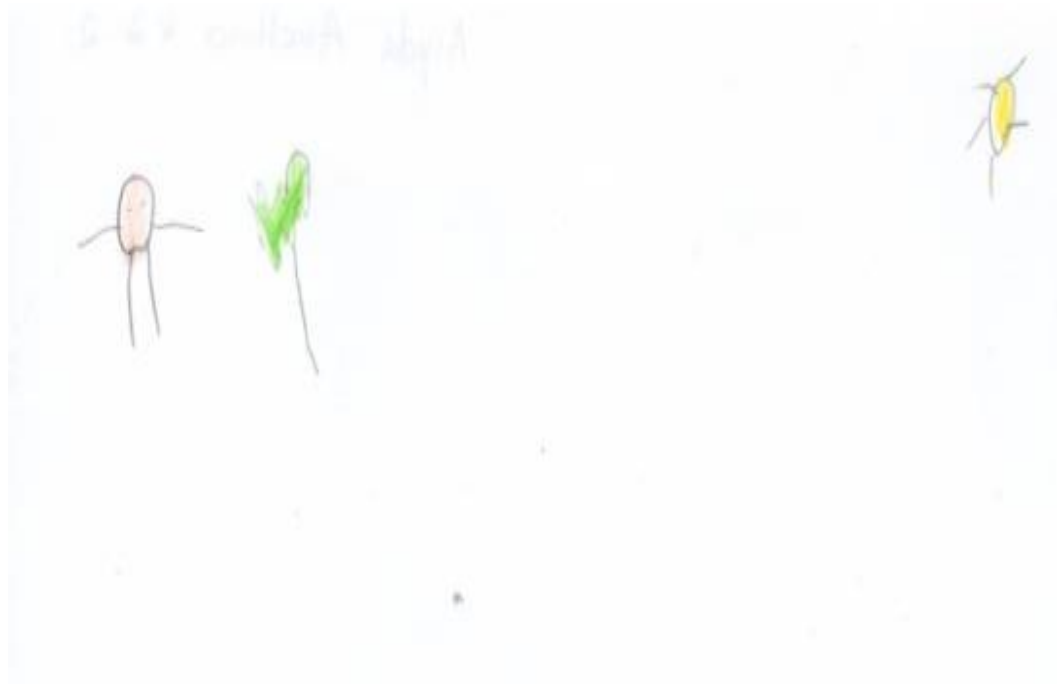
Puppet: What did you draw here?

Ayida: This girl is me, this is a tree and this is the sun.

Puppet: What else can you tell me about your drawing?

Ayida: I am taking care of nature and playing.

When I asked her how she took care of nature Ayida said, “Mummy shows me how to take care of the trees and flowers because I need to do like her.”



**Figure 5.13. Ayida’s drawing of the environment.**

During the interview, Ayida said that both adults and children were responsible for safe-guarding the natural environment, but she admitted that children needed some guidance from adults in order to properly care for the natural environment.

Ayida was concerned that there were too many cars in Malta because she frequently got stuck in traffic on her way to and from school. Despite this inconvenience, she still said that cars were necessary for people to travel from one place to another.

Ayida talked about recycling as a way of caring for the environment but she said that she only recycled at school and at her grandparents' house but not at home. Ayida did not mention the term "recycling" *per se*. When asked by the puppet, "Do you know what recycling is?", she said that she did not know. However, during the photograph interpretation it turned out that she had some understanding of recycling but she did not possess the right vocabulary yet. In fact, she explained, "We put paper, plastic and glass in different bins. In one I put the packets and the papers ... (pause), in the other I put the glass and in the other ... (pause) I put the tomato cans."

Ayida said that she liked to watch television but she did not mention any programme in particular.

#### ***5.4.3.4 Reflection on Ayida's perceptions of environmental sustainability.***

Although Ayida was described by her teacher as a shy and quiet girl, she interacted quite well with me during the observations and the interview. There were some similarities in the views of Ayida's and Jacqueline's accounts of the environment and sustainability. For example, both believed that power stations were a major cause of air pollution and were hazardous to human health. It is worth noting that the interview with Ayida and Jacqueline was conducted after a general election was held in Malta on 9<sup>th</sup> March, 2013, where as indicated by Jacqueline, one of the political parties (the Labour party), built its electoral campaign on the idea of power stations as factories which cause cancer.

Jacqueline's claims that Ayida was too young to understand anything about environmental sustainability were in contrast with Ayida's views because the girl said that her mother taught her how to take care of nature. Similarly, Ms. P said that Ayida hardly recycled at school, yet Ayida was capable of talking about recycling



and clearly and correctly indicated the use of particular recycling bins during the photograph interpretation.

Ayida was receiving conflicting messages about environmental sustainability at home and at school. Mr. D, Ms. P and her grandparents encouraged the children to recycle but Jacqueline did not encourage her child to recycle.

#### **5.4.4 Thea's case study.**

##### ***5.4.4.1 Profiling Thea.***

**Table 5.6. Thea's demography.**

<b>Child</b>	<b>Age</b>	<b>Gender</b>	<b>Parent</b>	<b>Class</b>	<b>Teacher</b>	<b>Head teacher</b>
Thea	4 years 9 months	F	Catherine	Kindergarten 2	Ms. P	Mr. D

Thea (see Table 5.6) was described by her teacher as a very talkative, well-behaved girl. Thea got along well with her peers and was constantly followed around by Ayida (previous case study). An interview with and observations of Thea were conducted at school.

##### ***5.4.4.2 Thea's home.***

Catherine was a 32-year-old. An interview with Catherine was conducted at school. She described herself as a housewife. When I asked Catherine to define the environment she framed it as including the balance between the natural environment and the human-made environment. Catherine found it quite hard to give me a definition of environmental sustainability and finally declared that she was not interested in the issue at all and asked if she could skip some of my questions. Yet,

during the interview Catherine spoke to me about the importance of education as a key to raising awareness about environmental sustainability.

Catherine said that she and her family did not recycle because she considered recycling material to be rubbish. This was confirmed by Thea who also said that she did not recycle at home because “Mummy says that recycling is rubbish and mummy wants to keep the house clean.”

Thea said that she spent a lot of time with her grandparents and she visited her grandfather’s fields on regular basis. Thea said that her grandparents taught her how to recycle, conserve rainwater and how to love nature. She said:

Thea: My grandfather does that in his field.

Puppet: He does what?

Thea: He puts water in a tank to save water.

Puppet: Where does he get the water from?

Thea: When it rains.

Thea also talked about energy conservation and pointed out that it is not good to leave water running and the lights on when no one was in the room, for example,

Thea: It’s very bad and they are naughty to waste water and leave the lights on.

Puppet: Why?

Thea: Because mummy and daddy told me not to do like that because of the money.

During the interview, Catherine confirmed that she had taught Thea to conserve water and energy for financial reasons.

During the interview Catherine said that her major source of information about environmental sustainability was the local storekeeper because, “She (the local storekeeper) knows everything ... She briefs the daily news and I learn a lot from her and from the other people in her shop too.” Catherine recounted how the costumers met at this shop on a daily basis and discussed various issues, events and people too.

#### ***5.4.4.3 Thea’s perceptions of environmental sustainability.***

Talking about her drawing (see Figure 5.14), Thea discussed the environment as follows:

“There is the sun, the trees, the animals and the worms.”



**Figure 5.14. Thea’s drawing of the environment.**

During her drawing interpretation Thea pointed out that Ms. P had spoken to her about nature. Thea told me that she had drawn nature as Ms. P had explained it

to her. Thea said that people are responsible for caring for the environment by,  
 “Taking care of the trees and not kill birds and worms.”

Thea said that too many cars in Malta, which were making people’s lives difficult. Talking from personal experience, Thea said that other people’s cars were causing problems to her family, and explained:

Thea: Cars are not good because yesterday we were going to grandma’s house and there was a lot of traffic and we got stuck for a long time. When we got there, there was no parking space and we had to go back home.

Puppet: What would you suggest we do about this?

Thea: It is best if people did not have a car but we need the car to go to grandma’s and my dad to go to work ... (pause) and cars cause traffic accidents and I do not like them.

Later, during the interview Thea mentioned cycling as a healthy and environmentally friendly alternative to cars.

Thea also talked about how proud she was that she recycled and said, “We put the tissues, the papers and the plastic wrappers in special bins in the classroom because Ms. P told us to do so.” This was confirmed by Ms. P who said that she always taught children how to recycle.

During one of the observations Thea told me that she enjoyed the morning assemblies at school, especially whenever Mr. D told them a story about saving water while brushing his teeth. Mr. D confirmed this story and he told me this story again during his interview.

Thea said that she watched a lot of television at home and sometimes she learned about the environment from television programmes but she was unable to mention any particular programme she was talking about.

#### ***5.4.4.4 Reflections on Thea's perceptions of environmental sustainability.***

During the drawing interpretation, Thea told me that she had drawn a version of nature as explained to her by her teacher. This could have been the result of the teacher's preparation for my visit or it could have been a result of Ms. P's own interest in teaching young children about the environment and sustainability.

Thea frequently drew on her personal experiences in the local context to illustrate her concerns for local environmental problems, such as traffic in Malta. Interestingly, Catherine believed that formal education was the key to raising awareness about environmental sustainability. Yet, Thea's informal education also played a role in her perceptions of environmental sustainability; water and energy conservation lessons by her grandparents and energy saving strategies at home taught her some valuable sustainability practices. Water conservation is especially important for people living on an island where rain is scarce in winter and where summer is very hot and dry. Catherine's disinterest in recycling was in contrast with what was going on at school; Catherine considered recycling as rubbish, while at school Thea was taught how to recycle.

Despite these different and complex messages about environmental sustainability, Thea still developed her own perceptions of it. Thea knew the situatedness of pro-environmental measures and how they were to be enacted contextually because she knew which behaviour was acceptable in different contexts. At school and at her grandfather's place Thea had some good role models of pro-

environmental behaviour, even if she had some conflicting messages at home: for example between the school's and her grandparents' engagement with environmental sustainability; and her mother's lack of interest in environmental sustainability. Thea worked her way between these different contexts and learned which pro-environmental behaviour was acceptable according to context.

## **5.5 Case Study in Year 1**

### **5.5.1 The teacher.**

Ms. L taught children between ages 5 and 6. An interview with Ms. L was conducted at school. Ms. L said that she had a B. Educ. (Hons.) and 10 years of teaching experience in ECCE. When I asked Ms. L to define the environment, she included both the natural environment and the human-made environment in her definition. When I asked Ms. L to define environmental sustainability she was confused and admitted that she could not define it. During the interview she placed a lot of emphasis on the conservation of the natural environment as a means of achieving environmental sustainability. Ms. L said that she was mostly concerned about local environmental issues, such as over-development of rural areas, air pollution and hunting. Yet she admitted that she only recycled at school, and blamed her lack of pro-environmental actions outside school on her busy lifestyle. She also told me that she believed the children in her class were too young to understand the concept of environmental sustainability. She complained about the syllabus being too vast to include extracurricular activities about environmental sustainability, but said that she followed the *EkoSkola* activities and the school's environmental activities too.

### 5.5.2 Amie's case study.

#### 5.5.2.1 Profiling Amie.

**Table 5.7. Amie's demography.**

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Amie	5 years 6 months	F	Alison	Year 1	Ms. L	Mr. D

Amie (see Table 5.7) was described by Ms. L and Alison as a quiet and diligent girl. An interview with and observations of Amie were conducted at school.

#### 5.5.2.2 Amie's home.

Alison was 35 years old. An interview with Alison was conducted at school. She said that she worked in the purchasing section of an electronic company. Alison said that she had a diploma in management from the Maastricht School of Management in collaboration with the Malta Institute of Management.

When I asked Alison to define the environment, she described it as consisting of the natural and the human-made environment and said that both environments were equally important for the well-being of humanity. According to her, environmental sustainability was the act of preserving the natural resources for the well-being of nature and for the benefit of humanity, now and in the future. Alison said that she was influenced by her employment in waste reduction management, which she believed increased her concern about the production of waste and its recycling process, both locally and globally. She said that her education, employment, books and the Internet influenced her decisions about environmental

sustainability. Alison said that as a parent, she felt responsible for setting a good example to her children and she described how at home the family reused items until they could not be used anymore and then they recycled them. This was confirmed by Amie, who said that her parents wanted her to minimise waste and to reuse and recycle materials at home. During their interview, Amie and Alison talked about how the family recycled toys and clothes with relatives and friends, which they considered to be a way of caring for the environment.

Amie said that she also learned about recycling during one of her favourite cartoon characters series on television called *Go, Diego, Go!* and *Dora the Explorer*. Alison too made reference to this cartoon series and said that Amie had watched it several times a week for the past few months.

According to Alison, Amie was still too young to possess and process certain abstract thoughts such as those about environmental sustainability.

#### ***5.5.2.3 Amie's perceptions of environmental sustainability.***

When I asked Amie to describe the environment for me, she described it as, “Flowers, trees, birds, and bees.” Talking about her drawing (see Figure 5.15), Amie discussed the environment as follows: “This is the environment with the sun, the grass and a flower.”





**Figure 5.15. Amie's drawing of the environment.**

Amie said that people were responsible for caring for the environment by, “Keeping the Earth clean.” During the photograph interpretation Amie elaborated on this by saying that people should keep the Earth clean by producing, “... less exhaust in the air” and also by producing, “... less waste and rubbish. We need to recycle paper, plastic, metal, wood and glass ... people need to waste less and recycle more and they need to use cleaner modes of transport.” When talking about sustainable fishing, Amie said that adults should not catch all the fish and they need to conserve some. She said, “That is because if the men catch all the fish, then there will be no more fish for other people to eat.”

Amie said that she was aware that paper is made from trees. She said that people need to reduce their consumption of paper to save trees and to conserve paper for her own needs, for her family's needs, as well as for the needs of all children.

For this reason, she said that she recycled at school and at home too. In fact, Amie said that she recycled paper, plastic and food leftovers at school and at home. She also said that she was very excited about the school's recycling competition. During one of the observations I noticed that Amie used both sides of the paper and she had a laminated A4 sheet and a water-based marker underneath her table. She told me that she used the laminated sheet for rough workings during schoolwork in order to save paper and trees.

Amie expressed her concern about her parents getting caught in traffic on their way to work because according to her, there were too many cars in Malta, due to the inefficient public transport system. Amie also talked about the negative effects of exhaust fumes and explained:

Amie: But cars are not good either.

Puppet: Why?

Amie: Because they make the air dirty.

Puppet: How do they do that?

Amie: With their exhaust. The exhaust makes the air dirty.

Puppet: What happens if the air gets dirty with this exhaust?

Amie: We breathe in the dirty air from cars and we get sick.

Amie said that walking short distances or cycling were cleaner and good alternative modes of transport.

#### ***5.5.2.4 Reflections on Amie's perceptions of environmental sustainability.***

Amie had very good communication skills and was able to express her ideas clearly during the interview. Amie and Alison demonstrated particular interest in

environmental sustainability. Recycling featured frequently as a strategy for preserving nature in Amie's, Alison's and Ms. L's accounts.

Ms. L and Alison thought that Amie was too young to understand anything about environmental sustainability. Yet, Amie drew on her personal experience within her family, school, and within the local context to illustrate her concerns for local environmental issues. Television also played an important role in teaching Amie about recycling.

Wider contextual influences in this case study were observed, for example, the mother's education and her employment influenced the pro-environmental behaviours of the family. Alison was influenced by her employment in the waste reduction and waste management industry and in turn she influenced Amie's ideas of waste reduction and minimisation as well. These contextual influences and behaviours might have helped develop some of Amie's perceptions of environmental sustainability and might have helped her learn the vocabulary to express her ideas in this regard.

## **5.6 Case Studies in Year 2**

### **5.6.1 The teacher.**

Ms. N taught children between ages 6 and 7. An interview with Ms. N was conducted at school. She stated that she had a B. Educ. (Hons.) and was an experienced teacher who had taught at different grade levels over the past 20 years. When I asked Ms. N to define the environment, she described it as nature, which did not include humans. When I asked her to define environmental sustainability, she discussed it as the protection and conservation of nature and natural resources around

the world and in Malta. Ms. N told me that she believed education was key to help people to conserve nature and ensure environmental sustainability. She said that although she lacked professional development in ECEfS, she talked about how she encouraged children in her class to reuse/recycle objects and how she tried to minimise the use of paper. During the observations, I noticed that the children in her classroom used small doodle whiteboards as rough paper made of a laminated A4 sheet, instead of paper, which they could reuse several times during the school year. She said that she followed the *EkoSkola* and the school's environmental activities. Ms. N also said that she wished she could teach children about environmental issues more often but she was constrained by time.

### 5.6.2 Ylenia's case study.

#### 5.6.2.1 Profiling Ylenia.

**Table 5.8. Ylenia's demography.**

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Ylenia	6 years 5 months	F	Robert	Year 2	Ms. N	Mr. D

Ylenia (see Table 5.8) was described by Ms. N as a bright and quiet girl. An interview with and observations of Ylenia were conducted at school.

#### 5.6.2.2 Ylenia's home.

Robert was 35 years old. An interview with Robert was conducted at school. He said that had an undergraduate degree in religion from the University of Malta and was self-employed.

When asked to define the environment, Robert defined it as, “The environment that God created, such as nature; and the environment that people create.” Robert said that nature was God’s perfect creation and humans were responsible for taking care of it. While he said that he was concerned about the environmental issues the world is currently facing, he felt that humanitarian issues were of greater concern and needed greater attention. At one point during the interview he talked about his concern about climate change because it led to some humanitarian issues, particularly in developing countries.

Robert stated that in an attempt to reduce his family’s carbon footprint, and to reduce energy bills, he installed solar panels and a solar water heater at home. During my interview with Ylenia, she also talked of solar power as a renewable energy source and a cleaner alternative for energy production. Ylenia said that she always turned off the lights when leaving the room and sometimes she reminded her parents and the teacher to do so.

Robert talked about recycling as another pro-environmental strategy used by the family. This was confirmed by Ylenia, who also gave me her reasons for recycling too. She explained recycling as, “We can do something else from that material. For example, we can make tissues from used paper and so on.”

Robert said that his family started saving water lately upon Ylenia’s recommendations after she learned about the importance of water during a science lesson at school and this was confirmed by Ylenia during her interview. However, Robert believed that Ylenia was too young to understand the issue of environmental sustainability.

### ***5.6.2.3 Ylenia's perceptions of environmental sustainability.***

When asked to describe the environment, Ylenia discussed the environment as follows:

Ylenia: The environment for me is the trees, plants, the sea, and like that and the people can enjoy nature and it helps people live.

Puppet: How does the environment help people live?

Ylenia: The trees and the sea give us food.

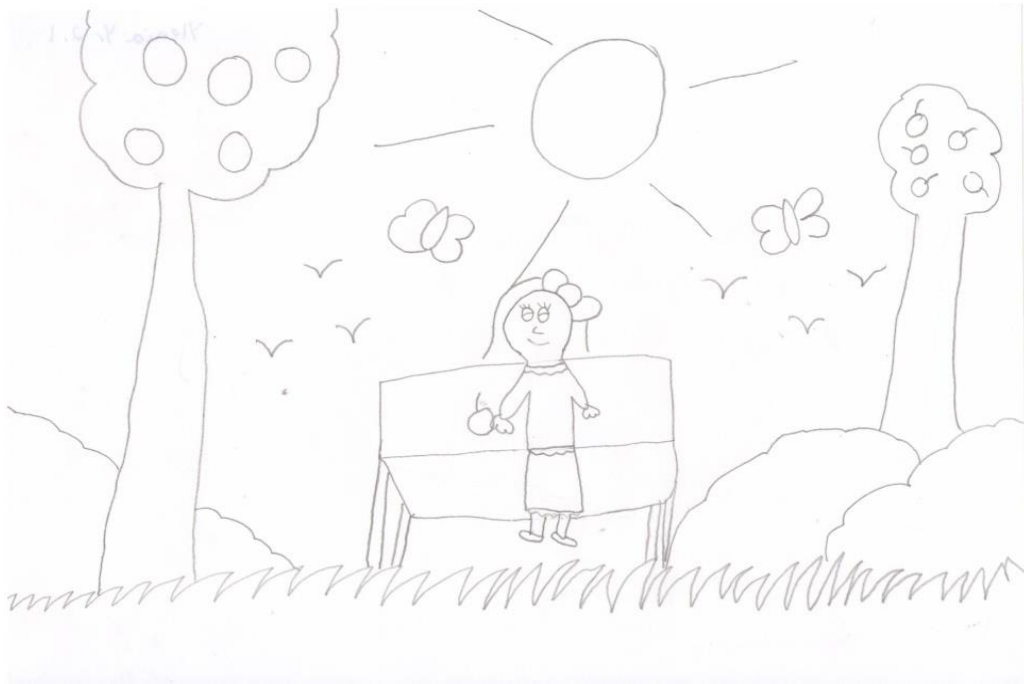
Similar perceptions of the environment were expressed in her drawing interpretation (see Figure 5.16). She explained:

Puppet: What can you tell me about your drawing?

Ylenia: I drew an orange tree, the sun, and two butterflies. Another tree and a girl sitting on a bench and some bushes.

Puppet: What else can you tell me about your picture?

Ylenia: This is a girl and she is in the environment and she is eating an apple and here are two birds as well. Trees are part of the environment.



**Figure 5.16. Ylenia's drawing of the environment.**

Ylenia said that people were responsible for caring for the environment. Specifically, she said, "People should keep the world clean. People should only use materials as much as they need, and they do not waste them."

Ylenia spoke about how unhappy she was about the fact that her mother drove her around all the time. She also told me that she felt helpless because as a child she could not do anything to convince her mother to drive less. Ylenia made reference to the use of cars and the burning of fossil fuels as a non-renewable energy source and said:

Ylenia: Cars make exhaust.

Puppet: Do you know how cars produce exhaust?

Ylenia: From their engines.

Puppet: And how does it happen?

Ylenia: The engine uses petrol.

Puppet: What happens when it uses petrol?

Ylenia: If we use it (petrol) all, there would not be any petrol left and then we cannot drive cars any more.

Ylenia said that walking and cycling are good alternatives to vehicle transportation.

Ylenia went further to explain that:

Ylenia: It (exhaust) makes the Earth dirty, causes a lot of pollution and the ice in the North Pole melts.

Puppet: Why does this happen?

Ylenia: Because car exhaust, the smoke from it I mean, melts the ice.

Puppet: So is it only exhaust from cars that melts the ice in the North Pole?

Ylenia: No, all smoke does that (melts the ice).

Puppet: Why does the ice melt?

Ylenia: Because the smoke is very hot and it melts the ice. Because then the smoke goes up to the North Pole and the North Pole is very cold. And hot things make cold things melt.

Puppet: And then what happens when the ice in the North Pole melts?

Ylenia: We get global warming.

Ylenia told me that she learned about global warming and its effects on the North Pole during a science lesson at school. She also read about it at home because the topic fascinated her after they discussed it at school and at home with her parents.

#### ***5.6.2.4 Reflections on Ylenia's perceptions of environmental sustainability.***

At the time of the data collection, Ylenia had excellent communication skills and was able to express her ideas very well. Although Ylenia and Robert included



nature in their definition of the environment, unlike her father, Ylenia did not include God in her definition of the environment. However, father and daughter both said that people were responsible for protecting nature. Recycling and renewable energy sources were mentioned by Ylenia, Robert and Mr. D as a strategy for preserving the environment; Ms. N mentioned reusing paper and objects before recycling them as a pro-environmental strategy in the classroom. This case study revealed some intergenerational influences such as when Ylenia encouraged her family to save water after learning about it at school.

When talking about exhaust fumes, Ylenia made the connection between the burning of fossil fuels and global warming. Ylenia was aware of the environmental cost of cars and she drew upon her personal experiences and illustrated her concern about the issue and offered alternatives to private car use that were more environmentally friendly. This indicates that Ylenia had some understanding of the carbon cycle but she did not possess the vocabulary to express her ideas in a scientific way, but she was still able to make the connection between the local and the global context.

### 5.6.3 John's case study.

#### 5.6.3.1 Profiling John.

**Table 5.9. John's demography.**

Child	Age	Gender	Parent	Class	Teacher	Head teacher
John	6 years 5 months	M	_____	Year 2	Ms. N	Mr. D

John (see Table 5.9) was described by Ms. N as a very bright boy. He was able to communicate in Maltese and in English. An interview with and observations of John were conducted at school. John's parents did not participate in this study.

#### ***5.6.3.2 John's perceptions of environmental sustainability.***

When I asked John to define the environment, he described it as follows:

"For me the environment is nature and I know how to take care of it." Talking about his drawing (see Figure 5.17), John said that, "I drew nature because it is a very nice place to be in for me."



**Figure 5.17. John's drawing of the environment.**

John said that nature keeps people healthy because it is a source of life for them. He also said that he had his happiest moments whenever he was in nature.

John was also concerned about the state of the environment and said, “They (people) are killing nature bit by bit because they (people) do not care.” He stated that since people lived on Earth and since they used the Earth’s resources for their survival, they were responsible for protecting the environment.

John said that he was concerned about air pollution as well, which he believed was caused by too much traffic and car exhaust fumes and explained:

John: Having too many cars is not a good idea.

Puppet: Why?

John: Because they make the air dirty with exhaust.

Puppet: How exactly?

John: If cars did not use gas, they would not make the Earth dirty.

Puppet: Where does this gas come from?

John: From petrol.

Puppet: What does petrol do?

John: It gives power to cars, vans, ships, aeroplanes, trucks, etc. and people can drive them.

Puppet: What else can we use instead of petrol?

John: I do not know.

Thereafter, John was silent for a while and then he suggested the use of public transport and walking as an alternative and cleaner means of transport. John also said that he was very worried that there is so much air pollution and unless people changed their behaviours, the world would soon come to an end.

John said that his family had solar panels at home and he seemed to speak positively about them and said:

John: Because they (solar panels) give us electricity and they save the environment.

Puppet: How do they save the environment?

John: I think because they are good but I am not sure how ... how exactly, I mean.

Puppet: OK. And why are they good for electricity?

John: Because they make electricity from the sun.

John believed that fishing was necessary for people to have food to eat. John also explained, "If people catch all the fish, the sea will be empty, but not completely because at the bottom there will be crabs and starfish, for example, but these are not good for people to eat." John was also aware that fish are actually a renewable resource if fishermen adopted sustainable fishing practices and specified:

John: If fishermen caught say only five fish a day, they could let the other fish live and they (the fish) will have babies and we will have more fish to eat. But then we cannot allow all the fish to live.

Puppet: Why cannot we let all the fish live?

John: Because otherwise there will be so many fish that the sea will be full of fish and they, the fish, will not have room where to swim in the sea.

John commented that he recycled at home and at school and he drew my attention to the recycling bins outside the school. He also said that he was proud that his school was participating in the recycling competition. During the interview he said that his motivation for recycling stemmed from his belief that recycling helps people live a better life but he could not explain how. He also said that he learned

about recycling from the cartoon series on television called *Go, Diego, Go!* and *Dora the Explorer* and he tried to emulate the behaviour of Dora and Diego.

John also expressed his interest in the school's recycling competition and he wanted his school to win this competition. So he brought used papers and plastics from home every day and he put them in the recycling room in the morning before assembly. This was confirmed by Ms. N and I also observed him doing so during the observations. During the observations I noticed John often reminded his friends to bring recyclable material to school.

John quoted his parents as a source of information about environmental sustainability and he said that they showed him how to have a sustainable lifestyle. John frequently reflected about the environment and said, "Sometimes when I am alone I think about the environment too because I like nature."

#### ***5.6.3.3 Reflections on John's perceptions of environmental sustainability.***

John had very good language skills and was able to communicate his ideas well. He drew on his personal experience to talk about the environment. He also expressed a catastrophic worldview when he feared the world would end unless people changed their behaviours. When talking about fish, John demonstrated some knowledge of fish as renewable resources.

Although I was unable to get a parental perspective of what was going on at home in terms of environmental sustainability, John indicated that his family was conscious of a sustainable lifestyle and had installed solar panels at home. In John's case, there was continuity between what was happening at home and at school because the parents, Ms. N, and Mr. D practiced the same sustainability practices at home and at school.

Television too played an important role in teaching John about recycling and he tried to emulate the behaviour of his favourite cartoon characters by recycling in different contexts. But most importantly John pointed out his personal interest in protecting the environment. John's personal dispositions and interests also played vital roles in helping John develop his perceptions of environmental sustainability.

#### 5.6.4 Jaylee's case study.

##### 5.6.4.1 Profiling Jaylee.

**Table 5.10.** Jaylee's demography.

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Jaylee	6 years 7 months	F	_____	Year 2	Ms. N	Mr. D

Jaylee (see Table 5.10) was described by Ms. N as a talkative girl. Jaylee was a member of the *EkoSkola* team. An interview with and observations of Jaylee were conducted at school. Jaylee's parents did not participate in this study.

##### 5.6.4.2 Jaylee's perceptions of environmental sustainability.

When I asked Jaylee to define the environment, she discussed it as follows:

"The environment is nature and the whole world, for example the place where you live, such as Australia or Malta. That's the environment."

Talking about her drawing (see Figure 5.18), Jaylee said that "I drew a girl and she is eating and threw away a paper ... (pause) on the floor. Then, another girl came and saw the paper. She picked it up and threw it in the bin. Here, there is an apple tree and a banana tree because I like them."



**Figure 5.18.** Jaylee's drawing of the environment.

Jaylee talked about how she believed children are responsible for protecting the environment, “by recycling, children are leaving a better world for other people ... otherwise they, the other people, would cry because they would not have anything left.” Jaylee further explained that adults were more responsible for protecting the environment because they had to set a good example to children.

Jaylee said that as a member of the *EkoSkola* club she recycled whenever she could and this was confirmed by Ms. N during my interview with her. Ms. N also said that Jaylee frequently encouraged her peers to recycle as well.

Jaylee was concerned about too much traffic in Malta. She said that her mother usually drove her to and from school, and to and from her drama lessons too.

Jaylee was worried about traffic congestion in Malta because usually she arrived late for her lessons. She suggested that other people should walk or use public transport so that she and her mother did not get stuck in traffic and arrive late to events.

However, Jaylee said that she would not use public transport, which she believed was unreliable.

#### ***5.6.4.3 Reflections on Jaylee's perceptions of environmental sustainability.***

Jaylee expressed her ideas clearly during the interview. In her definition of the environment, she included the natural environment and talked about both local and global contexts. She also included the human-made environment by mentioning the places where people live in her definition. The *EkoSkola* club, Ms. N and Mr. D encouraged Jaylee to recycle and she encouraged her friends to do so too. Jaylee's idea of recycling as an environmental sustainability strategy was future focused, in the sense that she believed that by recycling people will be preserving the natural resources for future generations.

Jaylee did not talk about what was going on at home in terms of environmental sustainability. However, she did refer to her mother's driving and the issue of traffic congestion in Malta but displayed conflicting messages about environmental responsibility. She wanted other people to change their driving habits but she was unwilling to change hers!



### 5.6.5 Liam's case study.

#### 5.6.5.1 Profiling Liam.

**Table 5.11. Liam's demography.**

Child	Age	Gender	Parent	Class	Teacher	Head teacher
Liam	7 years 2 months	M	Marija	Year 2	Ms. N	Mr. D

Liam (see Table 5.11) was described by his teacher and his mother as a talkative boy. Liam was a member of the *EkoSkola* team. An interview with and observations of Liam were conducted at school. During the interview Liam refused to use the puppet and he did not want to draw either.

#### 5.6.5.2 Liam's home.

Marija was a 39-year-old. An interview with Marija was conducted at school. She described herself as a housewife, who also worked in the fields with her husband and they had five children of between 7 and 15 years of age. When I asked Marija what the environment meant to her she described it as, "the nature around us that God created and humans are messing it up. That's a sin!" Marija described environmental sustainability as, "people protecting nature." She went on to talk about conservation of the natural environment for future generations of people as an environmental sustainability strategy and she said that people and the government are responsible for preserving natural resources.

Marija said that she was concerned about the use of pesticides, with particular reference to Maltese agriculture because she said that this was hers and her husband's employment and therefore it concerned her a lot. She said, "A lot of

people do not know what goes into these pesticides which cause a lot of health issues that just cannot be reversed.” This led her to ask, “What is the government doing to teach people how to care for the environment and about the harmful pesticides in their fruits and vegetables?”

Marija and Liam said that the family also recycled their food leftovers, which they used to make their own compost for agricultural purposes. They also said that their family used local produce as much as possible. During one of the observations Liam told me he spent a lot of time working with his family in the fields and he said that this made him feel like a responsible young man.

#### ***5.6.5.3 Liam’s perceptions of environmental sustainability.***

I asked Liam what the environment meant to him and he discussed it as follows: “Well, all the trees, the bushes, the animals ... (pause) and people.”

Liam said that it is very important that people keep the planet clean and recycle as ways of preserving the environment. He said that both children and adults are responsible for environmental protection. Liam spoke at length about the need to preserve the natural environment mostly by recycling and he saw people as being responsible for doing so. During the interview Liam said that he went to the village shops: “During the Easter holidays I filled a whole potato sack and I would have filled another one if only I had more time to go around and collect more material.”

Liam wanted me to understand his intentions for recycling and said:

Liam: Do you know why I recycle?

Me: No, not really but would like to learn why.

Liam: I recycle because I want Malta to be the most beautiful place on the face of the Earth. I also want my school to win the recycling competition so I

recycle at home and I collect recyclable material and bring it to school, for the competition.

Liam was concerned about air pollution in Malta and said:

Liam: Smoke from power stations and so on will *fuck* Malta and does not make it any cleaner but rather dirtier.

Me: Why do you think so?

Liam: Because it (smoke) smells awful and it (smoke) makes people sick, very sick.

Similarly, Liam was concerned about the traffic situation in Malta because, “Cars produce smoke and there are too many accidents, and their smoke makes Malta dirty because of the black smoke.”

Liam said that he was in favour of responsible and sustainable fishing practice in order to allow different species to reproduce. During the interview Liam said that he was afraid that fish were going extinct in Malta and he said that it would be a good idea to eliminate all the shark species slowly and said:

Liam: Fishermen should catch three sharks a day to feed people?

Me: Why three sharks?

Liam: Because sharks eat people and we do not need them and sharks are big so fishermen feed a lot of people and let the other fish live.

#### ***5.6.5.4 Reflections on Liam’s perceptions of environmental sustainability.***

During the interview Liam talked like a boy older than his age. This could be explained by the fact that outside school, Liam said that he spent a lot of time with his family members, all of whom were older than him. When talking about

environmental issues, Liam even used swear words to express his disgust with the local environmental situation.

Unlike Marija, Liam did not include God in his definition of the environment. Liam frequently referred to personal experiences within the local context to illustrate his perceptions of the environment and sustainability. Liam showed awareness of fish as a renewable resource, but a discussion with Liam indicated that he was unaware of the role of sharks in the sea which also indicated that he had no idea of the food chains involved.

At home and at school Liam had good role models of pro-environmental behaviours: Ms. N and Mr. D engaged the children in pro-environmental activities and according to Marija emphasised the importance of recycling and the wise use of natural resources because she had daily contact with nature through her employment. Therefore, Liam seemed to be experiencing continuity between these two contexts that helped him construct his own perceptions of environmental sustainability.

I now move on to present the final case study that was conducted in a different school to the above.

### **5.7 Context of the Study: St. Mary Primary**

This case study explores the perceptions of environmental sustainability of one child, Francesco, who attended St. Mary Primary, a different school to the above. I observed Francesco at school and at home. For this reason, this case study is structured slightly different from the rest. Therefore, I will start this case study by describing the context of the study, then I will present the teacher, followed by Francesco's case study.

### **5.7.1 The school.**

St. Mary Primary is a State primary school and an *EkoSkola*. It is situated in a post-World War II building. The school was built by the British in Malta and was opened in the beginning of the 1900s. The school has 10 mainstream classes, from Kindergarten 1 to Year 6, and houses approximately 185 children and 15 teachers.

Francesco's head teacher did not participate in this study but she granted me access into the school to collect the data and provided me with some valuable information about the school. I was not allowed to take any photos in this school.

### **5.7.2 The classroom.**

The classroom is a large, square room with four large windows and one door. It is divided into four different areas: in the centre of the room there are the children's desks. The teacher's desk is at the head of the classroom in front of the interactive whiteboard and at the back of the room there are four computers. Underneath the windows, there is the library and at the other end of the room there are three cupboards in which children keep their belongings. There are two recycling bins in the classroom: one for paper and one for plastics; some of the artefacts in the classroom are made out of used and recycled material.

### **5.7.3 The home.**

The family lives in a terraced house situated in a quiet area on the outskirts of the village. The home is located in a part of the village where most neighbours have well-established gardens, something which Francesco's parents said they longed for. Just outside the family's home, there is a well-presented leisure area comprising of a green space and a children's playground with some play equipment.

## 5.8 Case Study in Year 2

### 5.8.1 Teacher.

An interview with Ms. M was conducted at school. Ms. M said that she had a B. Educ. (Hons.) from the University of Malta and had been teaching for 19 years at St. Mary Primary. When I asked about her definition of the environment, she described the environment as nature. She described environmental sustainability as people preserving natural resources. She spoke about air pollution in Malta by making direct reference to the power station in Marsa, which she believed was causing a multitude of illnesses and she wished that this would stop.

Ms. M said that her concern for the natural environment led her to take pro-environmental actions that would lead to environmental sustainability, at school and at home. For example, she encouraged children in her classroom to recycle; save water; and turn off the lights when leaving the room as part of the school's *EkoSkola* programme; and she walked to school every day. She stated that education was very important to teach children and adults how to lead sustainable lifestyles because both children and adults could contribute towards a better environment.

### 5.8.2 Francesco's case study.

#### 5.8.2.1 Profiling Francesco.

**Table 5.12.** Francesco's demography.

Child	Age	Gender	Parents	Class	Teacher	Head teacher
Francesco	7 years 6 months	M	Julie and Keith	Year 2	Ms. M	_____

Francesco (see Table 5.12) was described by his parents as being shy at times but in general he was very talkative, vivacious and confident. Julie said that when Francesco was 3 years old had missed a year from school but she did not tell me why this had happened. Francesco frequently chose to draw his responses to my questions before providing his verbal responses because he felt comfortable expressing his opinions about his drawing. His mother said that Francesco attended the activities organised by a local environmental NGO (Nature Trust Malta) once a month but I was unable to observe Francesco during one of his activities due to time constraints. The interview with Francesco was conducted at his family's home.

#### ***5.8.2.2 Francesco's home.***

Julie was 34 years old and Keith was 37 years old. An interview was conducted with Julie at the family's home. Julie said that her husband ran a culinary family business. She said that she held a diploma in ECCE and worked as a kindergarten assistant at St. Mary Primary – the same primary school that Francesco attended. During my initial encounter with the family, Keith mentioned his wife as the primary caregiver of the family and said that they shared the family duties equally. Keith was not present during my observations and chose not to be interviewed because he said that he was busy with work.

When I asked Julie to define the environment, she described it as being made up of the natural and the human-made environment. Julie stated that both environments were important for the well-being of humans and the planet. She said that people's irresponsible actions were causing a lot of environmental degradation, both locally and globally. I asked Julie to give me her definition of environmental

sustainability and she described it as, “an action by people who care for the natural environment and preserve natural resources for the future.”

During the interview Julie talked about how she and Keith took pro-environmental actions at home. For example, the family used public transport often and cycled too. Julie and Francesco said that they both walked to and from school every day. Julie explained that she bought local produce and ate vegetarian meals most days a week. Recycling was also mentioned by Julie and Francesco as a useful strategy to help maintain environmental sustainability. For example, during one of the observations, after preparing dinner with Julie, Francesco brought a crinkled paper bag and put the leftover vegetables in it and explained:

Me: What are you doing?

Francesco: Recycling.

Me: How are you going to recycle?

Francesco: The rabbits will eat the vegetables. The rabbits like them and so we do not throw the vegetable leftovers away. (With a big smile on his face)

I like to feed grandpa's rabbits.

Julie said that at home the family had installed energy-saving lighting to reduce their carbon footprint and she was interested in insulating the home to diminish the amount of heat coming in during the summer and to minimise the loss of heat during the winter. Julie also said that she and Keith discussed such issues with Francesco and he was allowed to express his ideas because they believed that the best way to teach their child to lead a sustainable lifestyle was to lead by example.



During the observations at home, Francesco said that he enjoyed watching television, going to the cinema, and reading. Francesco spoke about how he enjoyed watching a movie called *Ice Age* because he said it is related to environmental issues, and how excited he was when later he bought the book about this film too. Julie commented about how intrigued he was with this story and he went on to ask for more books about this topic.

#### ***5.8.2.3 Francesco's perceptions of environmental sustainability.***

When I asked Francesco to tell me what the environment meant to him, he drew a picture (see Figure 5.19). He described it as, "This is nature, with lots of trees, flowers and butterflies. It is nice to be in it." He told me that this was his idea of the ideal environment.



**Figure 5.19. Francesco's idea of the ideal environment.**

Then, Francesco drew a second picture (see Figure 5.20). This time he said that he drew the current state of the environment according to him.



**Figure 5.20. The current state of the environment according to Francesco.**

When talking about Figure 5.19 Francesco said that he included positive images of nature. When talking about Figure 5.20 he said that he included a mixture of positive images of nature and the negative impact of human activity on nature. In Figure 5.20 he said the he included objects created by people and the negative effect these object had on nature where for example, “People had to chop down trees to build a tower instead.”

Francesco said that people must use natural resources wisely. According to him, this was a way of achieving environmental sustainability. Francesco made the connection between the cutting of trees and the burning of fossil fuels in causing pollution in the atmosphere in the global context, “and cause global warming.” He

said that people needed to plant more trees which would keep the air clean because trees absorb air pollution and produce clean air for people and animals. He also said that trees were important for, “furniture and paper and we should use both sides of a paper or use less paper so that we need to use less trees but then again we need to plant more trees.” During another observation Francesco suggested that, “We use both sides of papers and then put the papers back in the recycle bin and they can be used again without chopping the trees. That’s what I do!”

Francesco also linked the cutting down of trees to the extinction of some animal species and decreased resources for humans, “If we chop down a lot of trees, animals may die forever.” In Figure 5.20, he labelled the person in his drawing as an “orc”. Francesco explained that he usually compared people who destroy nature to the ugly creatures called “orcs”. He described orcs as, “ugly and cruel creatures” which he had seen in the movie *Lord of the Rings*. The photograph below (see Figure 5.21) was given to me by Francesco, showing the orcs he was talking about.



**Figure 5.21.** A photograph of two Lego “orcs”. By Francesco.

Francesco talked about the importance of preserving nature. He said that children, adults and the government were responsible for protecting nature. But he believed that the government was most responsible of all and should make new laws to protect natural resources.

Francesco also indicated that he had an understanding of the need to replenish natural resources, such as fish, in order to maintain sustainability. He suggested fish farms were a good idea, “So we do not run out of fish ... Because people are fishing too much and fish farms grow a lot of fish at once and we can eat them. Then we can throw some in the sea.” However, he said that, “We should kill all the sharks.” He specified that he was referring to great white sharks, “because they [great white sharks] kill people.”

Francesco was concerned about the hunting of whales and the possible extinction of the whale population worldwide. He viewed whale species extinction as a bad thing because the species would be wiped off the face of the Earth in the near future and according to him, children in the future would be at a disadvantage because they could only see whales in pictures without enjoying the real whales in the wild.

In the drawing below (see Figure 5.22) Francesco depicted his worries about pollution in Malta. Here, he referred to the black smoke coming out of the chimneys as, “that is pollution from the power station and it is going to kill us.” According to Francesco, the workers at this power station, which he referred to as the “inside people”, were dying first because, “... they were breathing in a lot the black smoke when they go to work.”

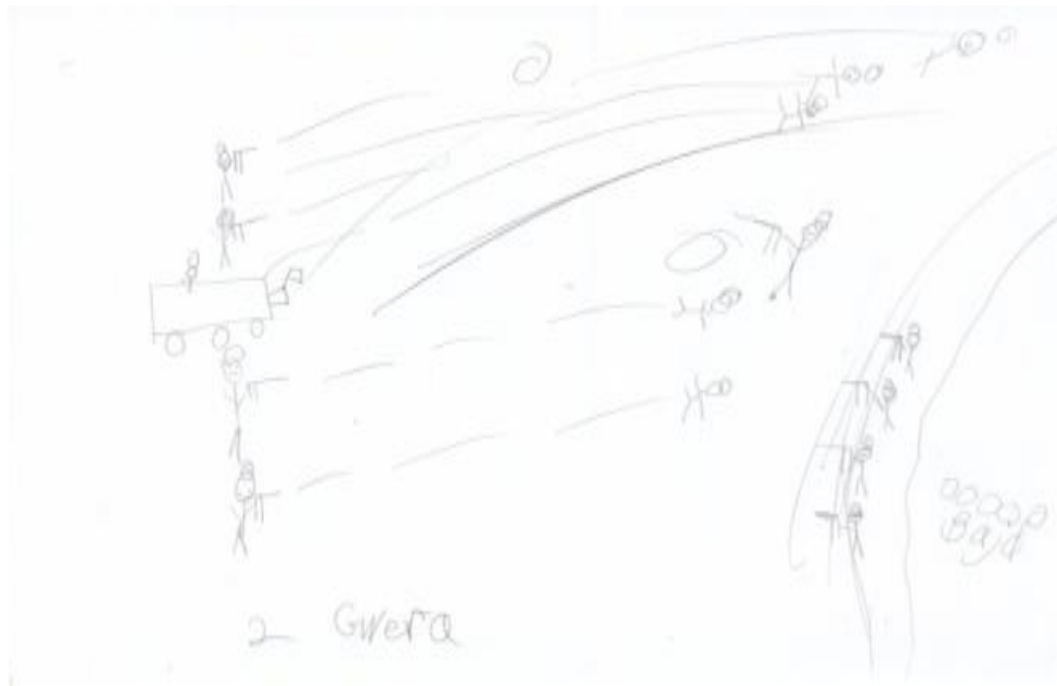


**Figure 5.22. Air pollution caused by power stations.**

Francesco mentioned solar energy as an alternative to power stations. He also said that solar energy generated by solar panels was a way of saving people from dying of air pollution. He explained that, “Solar panels are clean energy and do not cause pollution.” During the observations he commented on other possible actions that people could take to reduce their dependence on fossil fuels. For example, he suggested that people needed to reduce their dependence on oil and petrol to power vehicles. As a solution, he suggested more efficient public transport systems and more bikes to encourage people to use more sustainable transport systems.

Francesco was very aware of the need to reuse and recycle material. Ms. M said that at school there were many instances when Francesco demonstrated positive behaviour toward environmental sustainability, especially with his emphasis on recycling. Ms. M said that he constantly reminded his friends to recycle. During the observations I noted that he made most of his flash cards from used cereal boxes.

Next, Francesco drew a war scene (see Figure 5.23) but he did not want to colour it. He said that in so doing he would emphasise the gloominess of war. According to Francesco, war was causing a lot of environmental damage too because it killed people, and the bombs produced a lot of air pollution.



**Figure 5.23. A war scene by Francesco.**

#### ***5.8.2.4 Reflections on Francesco's perceptions of environmental sustainability.***

Francesco was able to articulate well-formed opinions of his interests and choices. He showed a significant level of knowledge of environmental issues, even if at times he had partisan views about them, for example, in the case of sharks and sustainable fishing.

Books, television and films were mentioned by Francesco and by Julie as a source of information about certain environmental issues. Francesco used characters in films to explain his ideas about the environment. For example, the use of the term “orcs” was a way of helping Francesco express his feeling about people who damage the environment.

Francesco was a child growing up in a family with interest in environmental sustainability. He also attended a school where environmental sustainability was considered to be a priority by the teacher. This sustainability conscious family recycled, walked often and they were very conscious of their carbon footprint, which reflected in Francesco's responses and behaviours too. His teacher shared some of these interests as well. Therefore, Francesco experienced continuity between the pro-environmental actions and behaviours learned at home and those learned at school. This could have helped him develop his ideas and interests in environmental sustainability.

## **5.9 Conclusion**

This chapter displayed the uniqueness about each child's perceptions and the particular contexts which were most influential to each child. Combining children's, parents', teachers' and head teacher's data has yielded fresh insights into the unique, personally significant factors that influence the children's perceptions of the issue under study. Children's data revealed that these 12 children held varying perceptions of environmental sustainability and they came to understand the issue through different avenues. While, generalisations cannot be made from these studies, together they provide rich insights into the individual experiences of these 12 children during a particular period in their lives, and helped me understand the quintain (Stake, 2006). It is hoped that the perceptions of these 12 children will provide a tool with which to better understand these perceptions for children in Malta.



## CHAPTER 6: DISCUSSION

This chapter is centred on the cross-case analysis and the discussion of the data presented in the previous chapter and concentrates on presenting the common themes as they emerged from the data, which will speak to the research questions. While the within-case analysis in the previous chapter emphasised the uniqueness of each case, the cross-case analysis in this chapter retains “the most important experiential knowledge” (Stake, 2006, p. 44). In this chapter, I identify unity and divergence across cases in relation to the themes. Stake (2006) advocated for aggregating, or merging, findings across cases as useful when attempting to understand the quintain<sup>9</sup>, since it allows for the degree of congruity, or disparity, to be explored across instances. For my study the quintain is the children’s perceptions of environmental sustainability and the contextual influences upon these. This required a deeper, more iterative process, different to the one adopted for the data presented in Chapter 5.

In this chapter I will contextualise the themes with reference to various literature drawn from the body of work presented in the literature review. Three overarching themes: children’s perceptions of the environment, children’s perceptions of environmental sustainability and the contextual influences upon children’s perceptions, and several sub-themes emerged from the analysis, which will speak to the research questions. For each theme, examples from each participant are included to highlight the ways in which each of these cases share commonalities.

---

<sup>9</sup> According to Stake (2006), the individual cases share a common characteristic. They may be examples of a phenomenon or members of a group. This group or category is called the quintain (Stake, 2006).

## **6.1 What Perceptions of Environmental Sustainability do Young Maltese Children Hold? (Research Question 1)**

In order to understand children's perceptions of environmental sustainability we must first understand their perceptions of the environment. Therefore, in this section I discuss the data that show how children perceived the environment.

### **6.1.1 Children's perceptions of the environment.**

#### ***6.1.1.1 The environment as nature.***

The first theme which emerged from my data was children's perceptions of the environment, which is central to their perceptions of environmental sustainability. When during the photograph interpretation I asked children, "What does the environment mean to you?" Most children conceptualised the environment as synonymous with nature. Notions of the environment as nature were also expressed in their discussions of their drawings. Their descriptions of nature were often lists of elements from the natural environment or images of nature, such as trees, birds, bees, butterflies, flowers and the sun, and sometimes they included humans. This is significant because it indicates that they had awareness of the natural environment around them and were able to refer to certain elements of the natural environment appropriately when articulating an idea. While children unanimously expressed the idea that the environment equated nature, including flora and fauna, their definitions of nature were varied and dynamic. Overall findings indicated children held a positive perception of the natural environment.

The perceptions of environment as nature resonates with findings from other research with young children from the UK (Bonnet & Williams, 1998), Australia (Stuhmcke, 2012), New Zealand (Prince, 2006), the USA (Rejeski, 1982) and internationally (Engdahl & Rabušicová, 2010). Walker (1995) suggested that the perception of the environment as nature might have been influenced by the use of the term “environment” in curricula and pedagogy, therefore, implying the notion that the term “environment” was limited to the natural environment. As I will discuss below, this perspective was also reinforced in the implementation of the NMC (Ministry of Education, 1999) and the majority of school activities.

#### ***6.1.1.2 Sense of place and identity.***

A sense of place refers to an individual’s connection to a place, which constitutes cognition, affection, meanings and values attributed to it (Farnum, Hall, & Kruger, 2005). Some children appeared to relate the natural environment to a sense of place in a geographical manner, an idea which was influenced by their personal experiences. When asked to describe the environment, some spoke of both their immediate environment, neighbourhood and local place.

Children most valued their local natural environment, with the global environment as second preference. Some, like Denzil, Liam, Jaylee, Ylenia and Francesco, proudly referred to Malta as the most beautiful, emphasising that such beauty could not be found anywhere else. Their personal interest in their home country contributed to their sense of place and place attachment. Children’s past experiences of human-environment relationships (both positive and negative), could have influenced the way in which some of them perceived quality of their place.

For John and Francesco the local environment provided validation and a sense of worth to their place. They romanticised the natural environment as a nice place to be in for recreation and they made positive remarks about nature and expressed positive feelings about it. John remarked that, “Nature keeps people healthy and it is a source of life for them.” In this case, John described nature as a source of well-being for people and said that he enjoyed being in nature. Francesco’s drawing (see Figure 5.19) was a romanticised/idealistic image of the natural environment according to him. While, their connections with the natural environment seemed to have become also emotional, using words like “Nature is beautiful” (John) and Francesco told me that Figure 5.19 represented his ideal image of the environment, they also offered an anthropocentric worldview of their idea of the natural environment even though during the fieldwork they offered other worldviews, which will be discussed below. As discussed in Chapter 2, an anthropocentric worldview is human-centred worldview where people are viewed as the “masters” of the natural environment (Fien, 1993).

Some children appeared to struggle with the concept of the environment meaning everything around them by using language such as “around” or “around us”. They defined the environment as including their home, family, community and even the whole world. For example, phrases like “our home” (Jazlyn), “the place where you live, such as Australia or Malta” (Jaylee) and “what is around us” (Denzil, Ylenia, Liam, John and Francesco) also pointed to children’s notion of environment as broader than nature. Interestingly, Jazlyn explored the idea of the environment as including everything around her immediate environment; she described the environment as, “We take pictures of our home with mummy and daddy.” This

could indicate that either Jazlyn included herself and her family, as well as elements of the humans as part of the environment in her definition of the environment, or else she did not possess the right vocabulary to express herself, because later, during the drawing interpretation, she described the environment as “a tree and the sea.” My finding supports Keliher’s (1997), who reported that 6- to 7-year-olds saw “nature (as being) everywhere” (p. 245).

#### ***6.1.1.3 Human-environment relationship.***

While questions surrounding human-environment relationships were found in several studies, few explicitly examined how children position themselves, and others, in relation to the environment (see Chapter 3). In the present study is that children did not see the environment as devoid of human development, or intervention, but rather people were seen as part of nature. During their discussions children implied a relationship between people and nature in the sense that the environment was characterised as providing relaxation and well-being to humanity. Children’s drawings reinforced this human-environment relationship. While some children did not include people in their drawings, they included notions of human-environment relationships in their responses. Denzil, Ayida, Ylenia, John, Jaylee and Francesco talked about their perceptions of the aesthetic and recreational qualities of nature that might be lost due to human activity, thus indicating awareness of the interconnection between humans and nature and awareness of the impact of human activity in nature. Denzil, Ayida, Ylenia and Jaylee drew pictures of recreation in the natural environment. Specifically, Denzil and Ayida, included themselves in their drawings and described themselves as having fun while enjoying nature; while Ylenia, Jaylee and Francesco included other people in their drawings of

the environment. When talking about their drawings, children discussed people as having recreational time in nature or doing recreational activities. Sarah, Amie, Thea, Ayida, John and Liam, talked about enjoying nature, indicating that they recognised a human-environment relationship, and specifically themselves, as part of nature. In their drawings, they also drew themselves, or others, in nature and they talked about people in the natural environment in their drawing interpretation as well. In this sense, it appeared that these children indicated an anthropocentric worldview because they perceived the environment as a source of enjoyment for human needs, in this case entertainment and relaxation. My finding supports those by Davis (2010), Prince (2006) and Stuhmcke (2012), who reported that 3- to 5-year-old children identified aspects of the human-made environment.

Over three decades ago, Rejeski's (1982) found that children, aged 6 to 7 years, did not include people in their drawings of nature. However, he found that 9- to 10-year-olds saw "man" as a passive participant in nature and 13- to 14-year-olds recognised "man" as a part of nature. In my study the majority of children pictured themselves and others in nature, whereas Rejeski reported older children possessed a clear recognition of people as part of nature but with passive roles in nature. In my study children portrayed people as have an active relationship with nature; either solving or causing environmental issues. Some children aged between 6 and 7 years in a study by Keliher (1997) did not include humans either. My findings contradict Rejeski (1982) and Keliher (1997) in this regard. There could be various explanations for this contradiction. An examination of the social context of both studies might provide an explanation for the passive portrayal of people found by Rejeski and Keliher versus the active and damaging portrayal evident in my study.

In a changing society successive generations differ in the education they get and the needs they might have. At the time of Rejeski's (1982) and Keliher's (1997) studies children might have had little awareness of environmental sustainability. These studies were also conducted at a time when the UN DESD was not yet established and so ESD might not have been part of these children's education.

As discussed in Chapter 2, the dominant paradigm in Western cultures and the NMC (Ministry of Education, 1999) is an orientation towards the environment, or nature, as separate from people. In contrast, my data indicated that these children were able to conceptualise how natural and human systems interact as parts of the environment. Perhaps more critically, children in my study conceptualised a relationship, and felt connected, with the environment in a cognitive sense. So, why did children in my study, living in a Western culture, adopt a perspective of humans as part of nature? Several explanations could be found in the practices and reification of the notion of environment in the surrounding community. These will be discussed when I address the second research question below.

#### ***6.1.1.4 The environment as an asset.***

Tied to children's perceptions of human-environment relationships and their sense of place was their perception of the environment as an asset to meet human needs. It appears that an anthropocentric view of the environment as both a necessity and a commodity that meets and sustains human existence on different levels, ranging from essential items (like food and shelter) to other necessities (like recreation), was also expressed by children. Sarah, Jazlyn, Denzil, Ylenia, Amie, Liam, John and Francesco talked about nature providing food, resources and shelter for people. This is an important finding because while children at this age might

have limited understanding of nature as an asset, their comments showed that they had an awareness of these as a way of expressing the relationships between people and nature. Such comments indicated an appreciation of a one-way relationship regarding food and nature as a provider of resources, suggesting limited understanding of the complex relationships inherent in the environmental sustainability scenarios.

To appreciate the significance of the finding that children conceptualised the environment as an asset to meet human needs, it is important to understand children's perceptions seemed to be a consequence of their history, culture and education. The Maltese education system in the post-colonial era was founded on a strong sense of optimism about economic growth and development based on human use of the environment. As discussed in Chapter 2, for millennia, and particularly in the post-colonial era, flora and fauna in Malta were used and altered in a way that satisfied the needs of an independent country. Indeed, the Maltese education system and much of Malta's industrial output was channelled into establishing an affluent society, to the point where authorities then in charge of the management of the Maltese countryside believed that the building industry was the foundation of the Maltese economy, which resulted in land exploitation and environmental degradation. These approaches were founded on a perception of abundance of natural resources (the land in particular) and a multiple-use philosophy that viewed nature as a valuable resource for human survival and enjoyment.

#### ***6.1.1.5 Fear for the environment.***

Given children's awareness of the detrimental effects human intervention in nature can bring, some expressed concern for the natural environment and talked



about their fears in relation to nature. Interestingly, fear of nature, known as “ecophobia” (Leal Filho, 2015, p. 561) and pessimistic views toward nature did not feature in the children’s data in my study. In his critical review of 100 pieces of international EE research, Rickinson (2001) reported that children associated nature with both reaction, nature as a threatening place and nature under threat (p. 276 - 277). There is an interesting distinction between findings in my study and those discussed by Rickinson (2001) because while the ideas of nature as a place for recreation and nature under threat were supported in my thesis, the idea of nature as a dangerous place, and therefore leading to ecophobia, was not. Interestingly, the danger expressed by children in my study was related to fear of harm to nature from human intervention in nature rather than the sense of nature as a threatening place as reported by Rickinson (2001). The difference in my findings and in Rickinson’s (2001) report could be related to the settings the studies were conducted in, where children living in very large and heavily populated urban cities (Detroit) such as those described in Rickinson’s review can have different experiences in nature than children living on a small island (Malta). Children in my study lived in rural communities, on a small island, where they have daily opportunities of pleasant experiences in nature. In fact, Rickinson (2001) cited evidence that suggested that fears of being in nature can diminish with pleasant experiences of nature (p. 278). This has relevance to my study because the natural environment in Malta is very different to natural environments abroad, in the sense that, in Malta there are relatively few natural elements, such as weather and wild animals, which can pose threats to human lives and there is very little countryside left for people to enjoy. This could possibly explain why children in my study evidenced pleasant

experiences in nature. For this reasons, perhaps fear of being in nature had not yet been introduced to these children.

As discussed in Chapter 4, children's views on the notion of environment were gathered using observations, drawings and interviews. Albery (2000), Barraza (1999) Fler (2002), Prince (2006) and Stuhmcke (2012) used a combination of artwork and interviews to explore children's ideas about the environment and to overcome the difficulty children might experience in talking about environmental issues. One of the largest differences between these studies and mine is the high proportion of positive views on the environment found in Sweden (Albery, 2000) and in New Zealand (Prince, 2006), less positive images in Mexico and the UK (Barraza, 1999), and lowest in studies in Australia (Carroll, 2002; Fler, 2002; Weeks, 2010); though in contrast Stuhmcke's (2012) Australian study children had positive perspectives on the environment. In my study, a positive outlook was also predominant. It is difficult to explain why children in one country hold such optimistic views while others are pessimistic. An important factor in all these studies was that the children who portrayed a pessimistic outlook were older. However, children in my study and even in Prince's (2006), Stuhmcke's (2012) studies were younger. That so many older children portrayed pessimistic pictures of the environment might be an indication that environmental issues permeated their perceptions as they got older and many perceived them as beyond control. Conversely, that so many children in my study, and in other studies in the early years, did not have a gloomy view of the environment could suggest that either environmental issues had not yet permeated their perceptions or that these children were still hopeful that such issues could be resolved in the future.

Therefore, my finding is important for several reasons. First, whenever children expressed fear it was fear *for* the degradation of nature rather than fear *of* nature. Specifically, they viewed the natural environment as a threatened place and fear was expressed in relation to the negative impact of human activity on nature rather than fear of nature, or natural elements. Second, it indicates that children expressed a sense of the temporality of nature and did not see it as a static place, but a place that would change with human intervention. Third, they were aware of the harmful consequences of human intervention in nature. Fourth, children expressed positive images of nature and indicating bio-centric and eco-centric worldviews, particularly when they understood that nature needed to be protected. Fifth, this finding is inconsistent with the theories of Piaget (1952), who identified young children in the pre-operational stage as being inherently egocentric. As discussed in Chapter 3, an egocentric child might not take someone else's view, but these children were able to take different perspectives and think in terms of the harmful effects of human activity on the environment and the well-being of living creatures (particularly people and animals) and the permanent destruction of natural resources and in such instances they exhibited both altruistic and biospheric value orientations. This is an interesting finding for ECEfS, because as suggested by Steg et al. (2005), environmental messages can be tailored to meet the individual's value orientation as values direct attention to value-congruent information.

My finding is similar to that of Keliher (1997), who found that 6- to 7-year-olds perceived nature as a threatened place. However, my finding contrasts with those of Wilson (1994) who reported that children between 2½ and 5 years of age showed fear, violence towards and lack of understanding about the natural

environment. Additionally, my finding supports Barraza's (1999) findings that children aged 7 to 9 years manifested a deep environmental concern in their drawings. However, my finding also contrasts with Barraza (1999) with regard to children's pessimistic views about the future of the environment. The variation between my study and that of Wilson (1994) and Barraza (1999) could be due to temporal, cultural and geographical reasons. Both studies by Barraza (1999) and by Wilson (1994) took place almost two decades ago, so children's awareness and understanding of nature were different and the kind of education these children received may have been different. This could possibly explain the different environmental concerns at different times and in different cultures and places.

While definite conclusions cannot be drawn, it appears that children's perceptions of the environment were not fixed and change according to the context they talk about, and according to their interests and past experiences in nature. This finding is not surprising given that the science involved in understanding the environment is complex and children were at an early stage in developing their scientific understandings. What is surprising though is the fact that children defined the environment as nature in a context of relationships between humans and nature, "who through their presence and activities, contribute to its shaping" (Ferro et al., 2011, p. 7).

Having discussed children's perceptions of the environment, I will now discuss the findings related to children's perceptions of environmental sustainability.

## **6.1.2 Children's perceptions of environmental sustainability.**

### ***6.1.2.1 Conservation of natural resources.***

While no child specifically used the terms “sustainable”, “sustainability” or “environmental sustainability”, there were numerous comments articulated by children that suggested that they had some ideas about environmental sustainability. A reason for not using the term could include the difficulty of pronouncing the term in Maltese (which is complicated for adults to pronounce, let alone young children). Particularly, during the photograph interpretation and the interpretation of their drawings, children offered their interpretation of the term in their own words.

Children generally conceptualised environmental sustainability as an activity by humans for humans and for the environment. For this reason, they expressed the idea of sharing natural resources fairly among humans and other living creatures. The most prominent and valued aspect of environmental sustainability by children was the conservation of natural resources. Consequently, they referred to the environment as finite; as something that can be used up and will eventually disappear unless some sort of action was taken to preserve it. Of significance for most children was the need for natural resources such as trees, fuels and fish to remain sustainable for the survival of humans and to supply food or habitats for other animals. Some children were aware of differences between “renewable” (such as fish, trees and solar energy) and “non-renewable” (such as fossil fuels) resources. Interestingly, while issues of renewable and non-renewable resources were sometimes differentiated, no reference was made to these terms by the children.

Children commented about their concerns that current and future generations of people would be unable to enjoy these natural resources if we continue to exploit

nature with the current lifestyles. It appeared that children were concerned that others could selfishly use something belonging to humanity, which would result in poorer quality of life for them, their families and other people. This finding points to the notion that children saw that the natural environment needed more attention and care, and indicates that they were developing awareness of the need to place limits of the amount of resources used to maintain environmental sustainability. In other words, they recognised the need to maintain natural resources at appropriate levels to maintain the well-being of the planet rather than permit their continued over-use and decline. This idea also suggests that their notion of environmental sustainability is related to the need to maintain the natural environment in order to ensure the continued survival of nature and different species, thus indicating their awareness of the essential reciprocal relationship between humans and nature. Therefore, it might be suggested that even if children did not always articulate sustainability as a reason for protecting nature, such notions may be deduced.

Interestingly, my data also indicate that while children had some understanding of the need to replace natural resources, in stating that only a small quantity of a resource should be used children did not seem to recognise that, depending on the resource, in some cases this simply postpones rather than solves the problem. Some children seemed to be unaware that for example oil reserves are finite and using half only reduces consumption until there is none left. Therefore, their responses related to conserving the resource rather than its long-term sustainability.

Overall, children's data indicate that they were aware that environmental sustainability permits the use of the natural environment for the benefit of humanity,

provided that people do not degrade it to a level where it will not sustain itself. Thus, indicated awareness of environmental sustainability by showed an understanding of their natural surroundings and valuing of the environment, as well as awareness of their position within the environment. This is an important finding for several reasons. First, children's perceptions of environmental sustainability are in line with my definition of the term presented in Chapter 2. Second, it resonates with the Bruntland Report's (WCED, 1987) definition of sustainable development. Third, children indicated a strong sustainability perspective when they wanted to save natural resources for their intrinsic and non-replaceable value (Ang & Van Passel, 2012; Davies, 2013). Fourth, it indicates that children were aware of the environmental impact of human reliance on natural resources. This has been recently highlighted by the IPCC (2014) which reported that human reliance on natural resources for survival has impacted the environment and has led to environmental degradation and a host of global environmental problems ranging from pollution, loss of biodiversity to global warming. Fifth, it is in contrast with Piaget's (1952) description of the egocentric child. Children's data indicate that they were not thinking in egocentric terms when they expressed their ideas about environmental degradation caused by human activity in nature and its detrimental effect on future generations, rather they expressed altruistic and biospheric values. This suggests that children had already formed future-focused ideas about the need to conserve natural resources for current and future generations, which is an important element of environmental sustainability.

### ***6.1.2.2 Environmental responsibility.***

Even though children's perceptions of the environment were largely based on a utilitarian and anthropocentric worldviews toward resource use, they declared that it was important not to degrade the environment. Children's discussion about the environment's functionality to human productivity and well-being and the use of natural resources indicated awareness that humans had an active role in generating environmental sustainability problems. In line with previous research by Alerby (2000), Carroll (2002) and Weeks (2010), children in my study tended to regard human intervention in the environment as related to environmental degradation, indicating that they were cognisant of the fact that humans had some impact on their natural surroundings.

Children in my study placed people in a position of responsibility for the environment. This is in line with other studies with children in other countries (Stuhmcke, 2012; Weeks, 2010), even if previous environmental research which was mainly concerned with children's perceptions of the environment (Bonnet & Williams, 1998; Carroll, 2002; Keliher, 1997; Payne, 1998; Rejeski, 1992; Walker et al., 2000; Wals, 1992), reported mixed findings about young children linking humans to environment and sustainability issues.

In so doing, children portrayed the environment as dynamic, therefore, as something that could change over time, particularly because it could be used up. Therefore, they expressed the need to save it, indicating that they valued the natural environment. For example, Amie, John, Liam and Francesco expressed the idea that it was not acceptable to disrupt the harmony and balance of the natural environment to satisfy their own wishes, for example, by catching all the fish and eating them,



using a lot of paper, or by chopping down trees, which would have a detrimental effect on the environment and on people's lives now and in the future. This indicates element of biocentrism, where the environment needed to be valued of the right of nature itself. This finding could possibly point to the notion of the environment as broader than nature, or a place that could change with human intervention, indicating fluidity in their perceptions.

Children's data indicate that they seemed to possess information on the consequences of individual consumption. Most importantly, children recognised that the issue of environmental responsibility was a complex one and indicated in their responses that environmental responsibility could rest in several people, including themselves, parents, adults and the Government, depending on the situation and depending on the issue being addressed. For example, Denzil, Ylenia and Amie implied that responsibility for appropriate pro-environmental actions lay with others, such as parents and other adults. Jazlyn, John, Jaylee, Liam, Francesco and Ayida expressed a personal responsibility for appropriate pro-environmental actions but they also recognised that the issue of responsibility for the environment was a complex one and lay both with the individual and others. Therefore, children saw that environmental responsibility lay across a number of individuals depending on the issue being addressed.

In my study, inanimate objects, such as vehicles and power stations, were associated with air pollution by Dalton, Denzil, Ayida, Ylenia, John, Liam and Francesco. Interestingly, these objects were not attributed the role of the polluter, rather people operating these machines were named as responsible for the environmental damage caused by these inanimate objects. Of significance here

though is the fact that when people were mentioned, it was primarily as contributors to environmental problems, and therefore the polluters, and only few children placed people in a positive role as protectors of the environment. Despite children's negative comments about human behaviour in relation to the natural environment, they did offer a range of solutions, which will be discussed below.

The Government was attributed with environmental responsibility by Francesco, who he felt it was the Government's duty to safeguard the environment and only called for law enforcement as a way of punishing people for degrading the environment as a way of protecting nature and natural resources for future generations. Francesco's emphasis on law enforcement contrasts with findings reported by Gonzalez (2013) where Maltese children aged 4 to 6 years, referred to religious or law enforcement reasons for preserving natural resources based on monetary value rather than for the preservation of natural resources for future generations. This is an interesting finding which shows that in ECEfS literature there is a gap related to children's attribution of responsibility toward the environment and environmental sustainability.

This is an important finding for ECEfS because first, it indicates that children were able to think of the consequences of human actions on the environment, which is in line with UNESCO's (2002) view of sustainability which stated that people must learn how to think of the consequences of their own actions, envision a sustainable future and create the steps needed to achieve this vision. It is in line with ECEfS, which as Davis (2010) asserted, focuses on how people think about environmental sustainability and the interactions between these relationships and how these relationships affect the environment and its functioning. Therefore,

people of different ages, both children and adults were portrayed as having an active role in maintaining environmental sustainability. This finding is in line with the SDSN (2014) vision of different generations working together for social development in order to achieve sustainability. Children also adopted a strong sustainability perspective, where it is believed that the natural environment should be looked after and implied that the value of natural capital should not decline (Ang & Van Passel, 2012; Davies, 2013). My finding is similar to those reported by Engdahl and Rabušicová (2010), where 2- to 8-year-olds recognised that people are responsible for taking care of the planet.

#### ***6.1.2.3 Major environmental sustainability issues of concern and proposed actions.***

To understand how young children in my study approached environmental sustainability, I sought their views regarding what they considered as essential action towards environmental sustainability and the location of such action. Because sustainability issues are multi-disciplinary, involving scientific, economic, political, social and cultural understandings, they are complex to fully comprehend by adults, let alone children. This required children to draw on many knowledge disciplines to explain these phenomena, something which sometimes was beyond children's comprehension. Therefore, in an attempt to simplify these issues, children made reference to local environmental issues which they could understand to help them interpret complex scientific, ecological and environmental phenomena, which would have been otherwise too difficult, if not outright impossible, for them to explain. For this reason, they discussed local, rather than global, environmental sustainability issues they were familiar with and proposed local solutions for these issues too.

In children's data, litter was reported as the predominant environmental concern that according to them, caused most damage to the environment, followed by air pollution; two environmental issues most discussed in Malta. All 12 children considered recycling as an important activity for the maintenance of environmental sustainability. They agreed that litter is unsightly and a nuisance and, therefore, they considered the picking up of litter and recycling as a panacea for solving environment problems, especially within the local context and they expressed a predominantly personal responsibility for recycling. This suggests recognition by children of the fact that certain resources are finite and can cause environmental damage if disposed of inappropriately, and therefore they need to be recycled prior to being thrown away forever. My finding is supported by Palmer (1995) and Palmer et al. (2003), who conducted research with children aged between 4 and 6 years and reported that children had an understanding of waste management. Children aged 2 to 8 years in Engdahl and Rabušicová's (2010) study also discussed the idea of recycling as a way of protecting the environment. However, my finding contrasts research by Kahriman-Ozturk, Olgan, and Guler (2012), who reported that while 5- to 6-year-old Turkish children understood the concept of recycling, they did not express any ideas related to reflecting, re-thinking and redistributing recycling material. Such difference could be due to contextual and cultural issues. It is also worth noting that children in my study attended schools which implemented *EkoSkola* and Francesco was a member of Nature Trust (Malta), one of Malta's most prominent environmental groups. Both *EkoSkola* and Nature Trust (Malta) were involved in practical activities, such as recycling, planting trees and caring for the local environment. Furthermore, the environmental unit with major focus at the time

of the fieldwork in both schools was “recycling” and St. Nicholas primary was participating in a national recycling competition. Therefore, my finding may be the result of the schools’ focus on local, rather than global, environmental issues and so children were able to adopt it and relate to its implied local action. This may suggest that involvement in an environmental group supports children’s attitudes of personal responsibility for the environment in terms of reducing litter and recycling. It also appears to encourage some children to believe that local action can impact on global environmental issues.

Air pollution was another major concern for children. Perspectives about air pollution were expressed by children in a variety of ways, with most commenting on it in an appropriate local context. Children spoke of an increase in air pollution in Malta and mentioned vehicles and power stations as the main polluters. In fact, traffic featured in all of the children’s data, except that of Jazlyn and Francesco.

Data suggest that children learned about air pollution through first-hand experience and they were very concerned about it and the health issues caused by it. Children’s concerns over the health hazards of air pollution could be explained by looking at the Maltese context, where at the time of the data collection the NSO (2013) reported that the total number of registered vehicles on the road in March 2013 was 315, 875 in an area of 316 km<sup>2</sup>. During our conversations, children indicated that they became aware of the issue of the high number of cars in Malta as one cause of air pollution through direct experience of getting caught in traffic and smelling exhaust fumes. While classroom discussions did not provide any avenues for the children to participate in creating solutions for local air pollution levels, at the school level at St. Nicholas primary there was an opportunity for children to learn

about ways to work together to solve the issue of air pollution; the school organised the Walking School Bus in their efforts to reduced private vehicle use around the school premises and to encourage children and parents to walk more.

When talking about air pollution children indicated some awareness of the burning of fossil fuel causing pollution in the atmosphere but they were unaware of the carbon cycle. Indeed, most children expressed awareness of the link between vehicle exhaust, power station emissions and air pollution but showed no awareness of the link between vehicle exhaust and increasing CO<sub>2</sub> levels in the atmosphere. Children's data suggest that they assumed that because fumes are components of vehicle exhaust and power stations, these cause air pollution and are hazardous to human health. Children appeared to make this broad generalisation based on an over-emphasis on fumes and apply it in an uncritical manner. In children's data, there was also a general simplistic view that when the world runs out of fuel, people will not be able to drive cars, thus people were seen to be in some mutually dependent relationship with fossil fuel as a natural resource.

Only Denzil associated limestone quarry dust with air pollution and health issues. This is an interesting finding because in Malta most buildings are constructed using limestone. In fact, limestone quarry dust is an environmental issue that local NGOs frequently discuss in the local media. During my conversation with Denzil, I discovered that he had based his perceptions of air pollution and its association with limestone quarry dust on personal experience.

Of significance here is the fact that recycling and air pollution are two important environmental issues associated with environmental sustainability in Malta. While recycling is not a politicised issue in Malta, air pollution is highly

politicised and controversial. Furthermore, while both issues affected these children's daily lives, recycling was relatively easy for them to understand because they experienced its impacts daily and it was integrated into school practices. My finding is supported by findings by Stuhmcke (2012) who reported that children, aged 3½ to 5 years, identified litter and air pollution as an issue of concern; and by Engdahl and Rabušicová (2010), who reported that 2- to 8-year-olds were able to name things which could be done for the environment, such as recycling. However, my finding is in contrast with previous research by Keliher (1997) who reported that 6- to 7-year-olds showed awareness of pollution as an environmental issue but they often equated pollution with litter. Perhaps a significant finding in my study is that different children were aware that litter and air pollution were two separate environmental issues that needed to be dealt with.

Children's perceptions of environmental sustainability tended to be multi-dimensional consisting of both concrete and abstract aspects. My findings suggest that although most children tended to focus on local environmental issues and based their responses on their concrete experiences, some were able to make the connection between local and global environmental issues. Some (Francesco, John and Ylenia) indicated an understanding of a range of consequences of air pollution within the local context and its connection with the global context although there was some uncertainty in their responses about how this happened. This finding may point to the fact that global environmental issues did not have the same local effect on children; most either did not know about them or felt uncertain about how to act in relation to them. This appears to suggest that children are better able to identify and act on local environmental issues rather than on global issues. Overall, children's

concrete processes highlighted their personal experiences within their local physical environment, while abstract processes highlighted their affection towards the environment, such as feelings, attitudes and imaginative thought.

Children's concerns for the environment and their suggested local solutions for environmental sustainability issues is in agreement with findings reported by other researchers (Bonnet & Williams, 1998; Carroll, 2002; Prince, 2006; Stuhmcke, 2012; Walker et al., 2000; Wals, 1992, 1994; Weeks, 2010; Yencken, Fien, & Sykes, 2000). My finding also has some similarity to research by Barraza (2001) with children aged 7 to 9 years in Mexico and in the UK. She showed that while Mexican children were concerned about air pollution, children in the UK were concerned about nuclear waste. In my study, 11 out of 12 children were concerned about air pollution but none of them mentioned nuclear waste. Taking account of the situation, I agree with Barraza (2001) who concluded that a possible explanation for the variation for these perceptions is the cultural, social and political situation of the society the children are in.

Perhaps the most surprising point about children's perceptions here is the fact that children in my study were able to consider the impacts of their own actions in relation to environmental sustainability. Despite the complexity of the issue investigated, children demonstrated willingness to take action toward the environment, particularly in the local context. That is, while they were more likely to point fingers at others with respect to environmental problems, they also understood that they were in part responsible. Therefore, they viewed personal actions as being consequential even though they believed that large-scale impacts of certain environmental issues were often deemed to be beyond their control. This



indicates that they were in some ways aware of their connection to the environment and most felt responsible and able to contribute to significant environmental improvements by changing their personal lifestyle. In so doing, they exhibited altruistic and biospheric value orientations in that as well as being interested in their own welfare, they were interested in the welfare of others, the ecosystem and the biosphere. My finding contrasts with Gonzalez's (2013), where young Maltese children in her study felt a lack of empowerment to take action towards sustainability. Children in my study generally believed that local actions, such as recycling and using less paper, could have an impact on and could resolve help resolve environmental sustainability issues. However, the linking of this action to a global effect was difficult for children to explain due to the complex nature of the global environmental issues and the scale of the solution involved.

In my study children's data also indicated an interesting dichotomy because while they felt empowered to take local action and implied that local action could have a positive effect (local and global) on environmental sustainability issues, they felt powerless in the face of more complex global issues and realised that they needed to depend on others to create change within a wider global context because they could not grasp the complex nature of the environmental problems for which solutions were sought. It seemed that the complexity of the larger global issues tended to overwhelm and confuse children and consequently they offered inadequate and confused responses. These findings support those of Jensen (2002) who reported that young children experienced difficulties when proposing appropriate environmental action because they find it difficult to grasp complex ecological facts,

and their understandings of strategies for change and awareness of an alternative vision for environmental issues were limited.

Interestingly though, my finding suggests that most children had a strong locus of control because they believed that their actions can make a difference, leading to a significant improvement in environmental quality. This resonates with the Responsible Environmental Behaviour Model (Hines et al., 1987), which highlights the importance of a “strong internal locus of control”, “personal responsibility”, “knowledge of action strategies”, and “action skills” in engaging in practice (see Chapter 2).

Since most children expressed desire to change their behaviours and habits, as well as in motivating others to do the same may suggest that they felt able to contribute to significant improvements in environmental quality by changing their personal lifestyle because they felt empowered to do so. In accordance to this, the Norm-Activation Model or Altruism Theory (Schwartz, 1977) is based on an “awareness of potential consequences” and “acceptance of responsibility for the consequences.” The goal here is to give importance to the factor of “altruism” and to prevent harm to others. This relates children’s strong sense of caring and sharing natural resources fairly, where they felt connected and responsible for environmental improvement as well as capable of expressing and adopting environmentally caring behaviours for young people’s well-being and environmental sustainability. Caring for the environment also means that children may have felt concerned about the environment, even if such concern may not always lead to behaviour change. In this regard, ECEfS could help young children become environmental agents of change and motivate others to adopt environmentally caring behaviours (Stuhmcke, 2012).

Overall, children's solutions for local action seemed to be influenced by local environmental agenda, such as recycling. My findings suggest that focusing on local environmental problems can encourage children to take action in favour of the environment. Consequently, these children suggested simple local solutions for the environmental sustainability issues they discussed, based on their first-hand experience. While this finding might sound too simplistic, it could be pre-conditional on the development of abstract concepts, such as environmental sustainability. It might be argued that focusing on local solutions is a weakness, however, I argue that by looking away and addressing only problems elsewhere children and communities neglect their country's environment and therefore, starting with a focus on local environmental solutions could act as a stepping-stone for the exploration of global environmental solutions. In fact, Ballantyne et al. (2001b) suggested that focusing on local environmental problems encouraged a sense of ownership and enthusiasm in older children, aged between 9 and 17 years, resulting in more community action. This also aligns with UNESCO's (2012b) suggestion where, by focusing on local environmental issues first, individuals could become equipped with the "knowledge, skills and values as well as heightened awareness to drive such change" (para. 1).

#### ***6.1.2.4 Socio-cultural, political and economic dimension of environmental sustainability.***

Children indicated awareness of their human dispositions as consumers of natural resources and this may be thought of as awareness of sustainable management of the Earth's resources. Overall, children's interpretations of environmental assets could be deduced as including ecological, aesthetic, economic,

social and recreational functions as these related to personal and community livelihood. These physical-social-cultural functions were experienced and observed to positively serve the children and others too. Furthermore, landscape features, and infrastructural and demographic structures dominated their narratives of positive environmental attributes of place. This finding is a line with dominant popular and scholarly images of children's descriptions of the environment described in Chapter 3. However, children's comments tended to be simplistic and limited to the consumption of certain natural resource, such as trees, paper, fish and fossil fuels. Reference to economic, political and socio-cultural factors relating to the use of these resources remained at a simplistic level, if ever mentioned at all.

Indeed, the economics of environmental sustainability issues were mentioned by some children when these involved both cost-saving strategies adopted at home or at school, and the environmental impact of their actions in relation to the issue under discussion. In fact, Denzil, Thea and Ylenia mentioned water and energy conservation both as a cost-saving strategy and as an effective pro-environmental strategy. Gonzalez (2013) reported that Maltese children aged between 4 and 6 years only made reference to the economics of sustainability specifically in relation to cost-saving strategies. In relation to this I argue that economic reasons for acting pro-environmentally cannot be discounted and still lead to achieving and maintaining environmental sustainability.

The economic and political issues associated with environmental sustainability were discussed by Liam and John, when they talked about sustainable fishing; and Francesco when he talked about whale-hunting – a political issue in many countries around the world. This indicates that these three children were able

to connect environmental sustainability issues with economic and political issues even though they did not specifically mention the economy and political contexts directly in their responses.

Overall, my study indicates that the political, social, cultural and economic factors related to environmental sustainability were least understood by children. Therefore, while some children appeared to have been developing some understanding of certain scientific phenomena relating to the environment (e.g. pollution and extinction of species), and they were aware of and were able to discuss certain environmental issues (e.g. resource depletion and global warming), they lacked the broader understanding of social, political, cultural and economic issues (e.g. overpopulation, poverty and social equity) that are essential to the development of a broad view of the factors involved in many environmental sustainability issues. A possible explanation could be the fact that children found these elements of environmental sustainability difficult to understand or perhaps they have never been exposed to these ideas yet.

Indeed, an awareness of the impact of human intervention on environmental sustainability issues would be deemed difficult to be understood without a broader understanding of political, social, cultural and economic issues involved. This concern has been addressed by Fien (1997) who argued that EE needed to abandon its preoccupation with the natural environment and it needed to include concepts of sustainability, including the issues of human rights, gender, racial equity, social equity and nature conservation. Based on the evidence of my study, Fien's concern appears to remain prevalent in the Maltese education system, where environmental learning revolved around environmental issues rather than addressing their causes

and, therefore, did not tackle economic, political, social and cultural elements of environmental and sustainability issues. When considering that educators, and most parents, in my study expressed no desire to deal with these issues, possibly because they were not exposed to the idea, it is not surprising that children did not discuss broader them either. This is not to say that educators and parents had not addressed these issues with children in other ways, but this seems to support the assertion that educators in particular were less likely to refer to political, social and cultural issues in their teaching about environmental sustainability. Perhaps Ayida's case study may be the exception, since political issues were discussed by both mother and child as they related to a local environmental issue: power station emissions. However, their perspectives were politically, rather than environmentally, motivated and they proposed erroneous scientific facts. Therefore, teaching about environmental sustainability issues continues to remain problematic, especially since such issues are influenced by different socio-cultural, political and economic phenomena.

Having investigated children's understanding of the environment and environmental sustainability, I will now discuss how this was influenced by context.

## **6.2 What are the Contextual Influences upon Children's Perceptions of Environmental Sustainability? (Research Question 2)**

In this section, I explore some of the contexts and interactions that directly and indirectly impacted these 12 children's perceptions of environmental sustainability.

### **6.2.1 Contextual Influences upon Children's Perceptions of Environmental Sustainability.**

The learning contexts observed in my thesis were: two State schools and a home. Children in my study drew their understanding of environment sustainability from a wide range of sources. Data from children, parents, educators showed various contextual influences upon children's perceptions. As argued in Chapter 4, adults' perceptions sat alongside, rather than in front of the children's. For this reason, and since my study focused on children's perceptions, a detailed exploration of the adults' perceptions was beyond the scope of my study. However, adults' perceptions will be included when they help to illuminate children's responses. While children's home and school seemed to be the main contributing sources to children's perceptions, other significant contributors included the extended family, books, the Internet, films, television, politics, culture and religion. Therefore, I argue that children's perceptions of environmental sustainability did not exist in isolation. Rather these were socially and culturally constructed in the context of home, school, and wider community.

#### ***6.2.1.1 Child characteristics.***

In Chapter 3, different theories articulated the significance of the child as an active individual in context. They also suggested that the biological aspects of child development, such as the child's age, interact with the culture and context are also influential. Therefore, individual child related factors are worth considering.

As shown by the cases in Chapter 5, each child's perceptions of environmental sustainability were comprised of different elements, in different combinations and were therefore a unique profile for each child. There were more

children from St. Nicholas primary than St. Mary primary. The 12 children in my study were aged between 3 years 4 months and 7 years 6 months; while they were recruited from particular age groups, this was not necessarily indicative of their experience or maturity. Although each age group was not represented by the same number of children, their ages and temperaments influenced the development of their perceptions of environmental sustainability. In fact, children's inter-personal and intra-personal characteristics and abilities were influential factors in developing positive attitudes towards environmental sustainability. For example, during my observations I noticed that children who appeared to me to be shy and timid, like Sarah, Dalton and Ayida, tended to focus only on personal actions for environmental sustainability, such recycling on their own; whereas children who appeared to me to be more outgoing, like Liam and Francesco, tended to involve others, such as friends or relatives, in their pro-environmental actions.

Although there were more girls than boys in my study, data did not evidence any clear gender differences between girls' and boys' perceptions of environmental sustainability. Previous research by Kahrman-Ozturk, Olgan, and Guler (2012) and Kahrman-Ozturk, Olgan, and Tuncer (2012), with 5- to 6-year-olds also found that gender did not seem to influence children's ideas about sustainability. This could be due to the limited number of participants in my study. However, other factors may be relevant, such as culture and upbringing, though this would need further investigation.

My data indicate that the broad patterns and awareness in children's understanding of environmental sustainability were different among older children (Year 1 and Year 2) in the sample, compared with the younger children



(Kindergarten 1 and Kindergarten 2). Evidence from the 12 cases suggests that different aspects of children's attitudes towards environmental sustainability at different ages could be the result of increasing knowledge and social influences, changes in children's cognitive and artistic development and a growing selectivity towards environmental issues. While Rejeski (1982) reported children's perceptions of the environment changed as they got older, Prince (2006) and Stuhmcke (2012) attributed the increase in children's knowledge with age and with their participation in environmental programmes. Yet, as discussed in Chapter 3, children's participation in environmental programmes does not necessarily translate into the acquisition of environmental knowledge, skills and attitudes. Therefore, I argue that both participation in environmental programmes and children's increased maturity as they get older can, individually or in combination, possibly influence their perceptions of environmental sustainability.

#### ***6.2.1.2 Lost for words.***

Defining certain complex scientific terms related to environmental sustainability in simple language proved to be problematic for some children. Particularly, Dalton, Denzil, Amie, John, Liam, Ylenia and Francesco used simplistic language to present their understanding of complex scientific phenomena. For example, Dalton said that "Exhaust burns our skin" when further questions revealed that he intended to mean that exhaust is bad for people's health. In his drawing of a power station (see Figure 5.22) Francesco, drew the "inside people" falling off the power station building. He explained to me that the "inside people" were the people working at the power station and since there was a lot of smoke and air pollution, these workers were becoming very ill and they needed help. Denzil, Amie, John and

Liam used the word “dirty” to mean “polluted”; Denzil, Ylenia and Liam used the words “black smoke” while referring to vehicle exhaust or smoke from power station emissions. Specifically, when they used the words “black smoke” they were actually referring to the dark colour of the smoke or exhaust; when they used the word “dirty” they were referring to air pollution and bad smells as a result of vehicle exhaust and power station emissions. Therefore, they perceived the dark colour and the bad smells of these emissions, rather than the CO<sub>2</sub> emissions, as being harmful to the environment and to people. Engdahl and Rabušicová (2010) too reported that children in different countries, aged between 2 and 8 years, used words like “dirty” and “clean” to describe their ideas about the state of the environment too.

There were two instances in particular when Liam and Francesco could not find the right words to express their emotions about people who degrade the environment. So, they used words they were familiar with to express themselves and make up for the vocabulary which was lacking. Liam said that, “Smoke from power stations and so on will *fuck* Malta”. Further questions revealed that Liam used the word “*fuck*” to express his disgust and disappointment with what he perceived as a degrading situation of power station and their related environmental issues in Malta. Francesco used the word “orcs” to describe people who degraded the environment. He explained that he compared people who degrade the environment to horrible creatures he had seen in the film *Lord of the Rings*. Francesco gave me a photograph (see Figure 5.21) of the orcs he was talking about and explained to me that he gave me this photograph because he wanted to make sure that I understood how ugly these orcs were. Therefore, when Francesco and Liam were lost for words, they tended to use words they were familiar with to explain their ideas about complex issues. In

particular, Francesco also used a different medium to express himself: photography, which helped both Francesco and myself construct meaning of his perception of people who degrade the environment.

Environmental sustainability is a complex issues and these examples from my data indicate that children encountered linguistics barriers when trying to explain their understanding of complex scientific issues. However, contrary to Vygotsky's (1978) concept of language as a cultural tool discussed in Chapter 3, these children were not devoid of internal processes in their thinking, rather they simply lacked the linguistic tools to express their thinking. I acknowledge that the issue under study is complex for young children to understand and I did not expect young children to poses the vocabulary to explain complex scientific phenomena. However, the fact that only 7 out of 12 children struggled to express themselves because of linguistic difficulties does not signify that the other children in my study did not have any difficulties in expressing themselves either. Possibly, the other children chose not to answer my questions instead of struggling to find the right words to express themselves.

In previous environmental research, Prince (2006) identified that 3- to 5-year-olds' limited language skills and lack of scientific, or appropriate vocabulary, as significant issues in her study too. In light of this, and drawing on my experience as a teacher of young children, one of the reasons for using a range of data collection methods with the children in my study was to enable them to present their ideas in a variety of ways. This was also a way of minimising difficulties with the use of complex scientific terminology as far as possible. This strategy was intended to

minimise the possibility of imposing adult terms on the children, so that they felt free to use familiar terms.

### ***6.2.1.3 Environmental worldviews and personal experience.***

As discussed in Chapter 2, an individual's PEBs are related to their value orientations and environmental attitudes, which in turn are underpinned by environmental worldviews and personal experience. Children's values and worldviews appeared to have been flexible and depended on the context being discussed. Indeed, children exhibited mostly altruistic and biospheric value orientations when discussing environmental issues and only few children exhibited egoistic value orientations. Overall, children expressed bio-centric worldviews when discussing issues related to their local contexts and expressed eco-centric worldviews when discussing the needs of the natural environment as a whole.

Children expressed anthropocentric worldviews when discussing the management of natural resource to meet their own needs and the needs of current and future generations. Interestingly, when children talked about human needs they first focused on how their personal needs or their family's needs can be met first. Therefore, suggesting that an anthropocentric worldviews were guiding their thinking about environmental sustainability and maybe genuine sustainability of the resource was not the main consideration. However, while this does not necessarily indicate that most children were positioning themselves as the next generation for whom sustainability of natural resources is necessary, they appeared to be concerned with the need to share the resource fairly between humans, and between humans and animals, over time so that there would still be some of the resource available for them to use when eventually they became adults. This was particularly evident in the

fossil fuels and trees, with some expressing outrage that the continuing depletion of fossil fuels might mean that they would be unable to drive cars or use paper when they became adults. What is interesting here is that while, Ylenia, Francesco, John and Liam, thought that they were responsible to use such resources wisely in order to prolong their availability; others, like Jaylee, thought that other people are being greedy and should not be using fossil fuels, in order to save them to satisfy the children's personal needs. This suggests that given the same context, children express mixed worldviews.

Some children indicated awareness of the conflict involved in maintaining an eco-centric or bio-centric worldviews, when an anthropocentric worldview would benefit them most personally. Their responses displayed the conflict between the need to use the natural environment for human needs while at the same time recognising the need to implement strategies to sustain the natural environment. Indeed, the more environmentally-aware children were also the ones who reflected a more eco-centric worldview, one in which a level of interdependency exists between human and nature, indicating awareness that humans are not the only ones using natural resources. Therefore, I argue that anthropocentric, bio-centric and eco-centric worldviews expressed by children were not seen as mutually exclusive.

Another interesting finding in my study was that despite age differences and language barriers, children were able to talk about the environment and certain environmental sustainability issues to varying degrees, particularly by drawing personal experiences. Children's data indicate that direct and first-hand experiences, particularly in their local contexts, seemed to influence how they talked about and perceived the environment and environmental sustainability issues. Children

observed changes in the nearby environment and were personally affected by them such as quarry dust, traffic, air pollution and litter. This indicates that despite being so young, children had already witnessed some local environmental changes and experienced their direct effect, which had a lasting impact on them.

Overall, children's data seemed to support the impression that their perceptions of environmental sustainability were framed by notions of personal worldviews and first-hand experiences of everyday events that occurred within their local contexts. Thus, indicating that they formed their perceptions of environmental sustainability-based on what they did and knew, suggesting that they engaged in socio-cultural processes in order to construct their understandings. This posits that their environmental learning was a function of an activity, and the context and culture in which it occurs. Very often such learning was unintentional as opposed to classroom learning, which was usually deliberate. While I acknowledge that such an analysis may be limited and open to alternative interpretations, it contributes to the discussion on the link between environmental sustainability, local environmental issues and direct experience.

#### ***6.2.1.4 Family.***

As discussed in Chapter 2 and 3, the role of families and communities are paramount in re-orienting ECCE towards ESD, especially since children's first social relationships take place within the family. In my thesis, the specific components of the family units that influenced each child's understanding were unique and personalised, but there were some commonalities among them that might have, or have not, contributed to the development of the children's perceptions of environmental sustainability. The first commonality concerned the construction of

each of the family units, which were made up of a two-parent family: a mother and a father. Only one father, Robert, agreed to be interviewed; the other nine parents whom I interviewed were all female. The second commonality was these mothers stated that they were usually the ones who spent most time with the children. Despite these commonalities, the interactions within the home environment were complex and multi-faceted.

Parents' definitions of the environment ranged from the environment as nature and the environment as being made up of both the natural and the human-made environment, however, they indicated preference toward the natural environment. This finding is consistent with previous research by Prince (2006), who reported that parents in her study equated the environment with nature and by Stuhmcke (2012), who reported that parental contribution featured a predominant preference for natural phenomena. In my study, there were some similarities between some of the children's and their parents' definition of the environment in three cases: Georgia and Denzil who defined the environment as nature that included people; Jeanette and Dalton who described the environment as nature; and Julie and Francesco who defined it as including both the natural and the human-made environment. In fact, Georgia confirmed that she had spoken to Denzil about recycling and water and energy conservation; Jeanette said that she was teaching Dalton how to recycle; and Julie and Francesco were observed carrying out various PEBs at home, such as recycling, redistribution of vegetable leftovers and water and energy-saving. These parents could have possibly influenced their children's perceptions of the environment through the social interactions that took place at

home, but not only, especially since children interact with other people in different contexts, which could have also been influential.

Parents offered different perspectives of environmental sustainability ranging from the preservation of natural resources; using natural resources wisely; protection of nature; keeping the Earth clean; and being unable to give an explanation of the term. Child's and the parent's perception of environmental sustainability were similar in two cases: Josephine and Jazlyn, who defined environmental sustainability as people taking care of nature; and Julie and Francesco who defined it as using natural resources wisely. Environmental sustainability is a complex scientific issue that might be difficult for people to understand unless they are involved in it. The fact that in only two cases did the perceptions tally does not necessarily indicate that the other parents had no influence on their children's perceptions of the term. A lot of complex cognitive and scientific processes are involved in defining a complex phenomenon such as this, and the fact that some adults felt uncomfortable during the interview might have contributed to these divergences.

Some parents (Natasha, Josephine, Marija and Jacqueline) expressed their concern with the balance of natural capital and, like their children, they discussed the idea that people are responsible for ensuring environmental sustainability. This is an important finding for several reasons. First, children and their parents indicated awareness that environmental sustainability permits the use of the natural environment for the benefit of humanity, provided that people do not degrade it to a level where it will not sustain itself. Second, this finding indicates that these parents and their children were aware that individual actions could lead to change for sustainability. Third, this similarity could indicate that through the social



interactions at home, parents could have influenced children's perceptions of environmental responsibility. Fourth, this finding is also in line with UNESCO (2002) which stated that in order to ensure sustainability, people must learn how to think of the consequences of their own actions, envision a sustainable future and create the steps needed to achieve this vision; and is also in line with SDSN's (2014) argument that different generations in society need to work together to achieve sustainability.

Both similarities and differences between children's and parents' data emerged too. Possibly, children who shared similar views to their parents' may have been influenced by their parents' concerns through the proximal processes (Bronfenbrenner & Morris, 2006) that took place at home. However, while it suggests that some parents influenced their children's perceptions of the issue, others did not. It indicates that parents and children were talking about issues which concerned them the most, which is very subjective and, therefore, an issue which concerned a child might not have necessarily concerned a parent and *vice versa*. What is interesting here though is that in all the case children and parents shared a commonality in their environmental concern: their concerns were initially local environmental issues. In keeping with the above discussion regarding children's perception, this finding indicates that by focusing on local environmental issues, children and parents can feel more enthusiastic and empowered to take action.

While children's data did not show any differences between genders in terms of the issues discussed and the way they were discussed, children's age influenced some of the environmental discussions between parents (Jeannette, Alison and Robert) and their children (Dalton, Amie and Ylenia). In fact, these parents believed

that their children were too young to understand complex issues such as environmental sustainability. However, their children were able to engage in a conversation about environmental sustainability issues. A similar finding was also reported by Engdahl and Rabušicová (2010). Gender influenced on parent, Natasha, in that she chose not to talk to Sarah about environmental sustainability because Sarah was a girl but she talked to her son about these issues. However, Natasha admitted that she had taught Sarah how to recycle. Here, parents indicated unawareness of their children's understanding of the issue under study, particularly because they thought their children were too you to understand complex issues. From a socio-cultural perspective, learning happens through participation in shared activities with a more experienced other; in this case the adult, determines the child's potential for learning within the ZPD (Vygotsky, 1978). At times, in these cases parents were not working within the ZPD of the child because they were influenced by the child's age and gender, respectively. However, their children still indicated awareness of certain issues the parents thought their children were too young to understand. This indicates that at this age children did not associate gender with environmental issues. While no definite conclusion can be drawn, parents' data could indicate that assigning gender roles to children could lead to different ways of perceiving, and dealing with, environmental issues later on in life.

Some parents stated that they encouraged their children to engage in pro-environmental activities at home, such as recycling, water conservation and energy conservation. Recycling, and water and energy conservation activities are laden with sustainability concepts with which children seemed to connect. However, parents indicated that they engaged in these sustainable practices mostly for economic

reasons first and then for environmental reasons. Energy and water conservation, even if it is done for financial reasons, does not diminish the parents' pro-environmental efforts and their influences on their children because cost-saving was found to be a good motivator for parents and children to take pro-environmental actions.

From a socio-cultural perspective, within environmentally-conscious families learning was situated in social interactions where parents and children interacted with mediating, cultural tools (Rogoff, 2003; Vygotsky, 1978). Therefore, these families tended to provide their children with cultural tools that helped them build environmental knowledge and attitudes through family interaction, socialisation and parental instructions, reminders, rules and modelling, such as recycling, and water and energy conservation practices. In fact, children's data indicate that they had gained knowledge about environmental sustainability issues mostly from working alongside their parents, but not only. Thus, environmentally-conscious families acted as role models and guided children's environmental learning. My finding concurs with those reported by Meeusen (2014) who showed that both parents can act as role models for their children's environmental learning by behaving in an environmentally-conscious way, by talking about environmental issues with their children and by providing an environmentally friendly home environment. My finding is also consistent with previous research by Ballantyne et al. (2001a) and Uzzell (1999) which provided evidence of the importance of family dynamics in the children's pro-environmental efforts at home.

Parental attitudes toward waste management did not seem to have affected Jazlyn's and Thea's attitudes towards recycling. Therefore, in these cases there was

a lack of relationship between parental attitudes towards recycling and children's attitudes towards recycling. Following a socio-cultural perspective, children coming from less environmentally-conscious families, lacked learning in social interactions and parents and children did not interact with mediating, cultural tools (Rogoff, 2003; Vygotsky, 1978). Therefore, Jazlyn and Thea must be thought of as lacking some of the cultural tools which were common to children coming from environmentally-conscious families, such as support from their family to learn about recycling for example. Furthermore, from a bio-ecological perspective (Bronfenbrenner & Morris, 2006), these children lacked the proximal process necessary for the development of environmental learning, for example about recycling. However, Jazlyn and Thea were able to learn the cultural tools necessary to engage with recycling from interacting with educators and other children at school (Rogoff, 2003). Through the proximal processes (Bronfenbrenner & Morris, 2006) happening at school, Thea and Jazlyn, acquired new environmental learning. In fact, these two children still valued recycling as a way of ensuring environmental sustainability. This finding suggests that while family dynamics are important because parental support and encouragement can enhance the effectiveness of their children's pro-environmental efforts at home, learning about pro-environmental efforts can happen in other contexts, and be just as effective. From a bio-ecological perspective (Bronfenbrenner & Morris, 2006), not only did the context where recycling takes place change, from home to school, but so did the interactions that occurred between the child and the environment that allowed, or prevented, proximal processes from occurring. It seems that Jazlyn and Thea learnt about what is unique

to them, and to their particular contexts, and learned to act accordingly, suggesting that children formed their perceptions in different contexts, other than the family.

Interestingly, despite some apparent family influences on children's perceptions of environmental sustainability, when children were asked who they believed mostly influenced their perceptions of the issue, only Denzil, Ylenia and Francesco said that they associated their parents with pro-environmental habit-forming. This finding resonates with Rogoff's (2003) concept of guided participation, which takes place when children's learning needs are understood within particular cultural and social contexts. Guided participation assumes that children and adults are partners in the learning process. Through guided participation from their parents, these children had common experiences with the members of their family and learned about water and energy conservation. The role of the parents as those modelling co-operative support strategies, as more experienced people in the community, supported children's perceptions of environmental sustainability and guided children's participation towards shared understanding of PEB. This suggests that at the time of the data collection, some children considered others (rather than parents) as being more influential on their perceptions but it does not mean that family practices did not influence children indirectly.

Following from this discussion, findings from Denzil's, Ylenia's and Francesco's data contradict the findings of Musser and Diamond (1999), but Jazlyn's and Thea's data concur with the findings of Musser and Diamond (1999). Indeed, Musser and Diamond (1999) reported that there was no direct relationship between parental attitudes and children's attitudes; children's attitudes were reported to have

developed from a wide variety of influences (such as siblings, teachers, grandparents, media and books). Perhaps the most significant finding in Musser and Diamond's (1999) study was that children's attitudes correlated with the degree to which they participated in pro-environmental activities at home, with children who participated in such activities showing more positive attitudes towards the environment. Presumably, the children in Musser and Diamond's (1999) study all had equivalent experiences outside of the home.

#### ***6.2.1.5 School.***

Head teacher's and teachers' (thereafter I will use the term "educators" to refer to both unless otherwise specified) perceptions of the environment were explored. In line with theoretical perspectives discussed in Chapter 3, data from educators in my study indicate that both schools tried to help children develop respect for the natural environment.

The environment was reinterpreted by educators as including both the natural and human-made environments; they said that both types of environments are essential for the well-being of humanity. My finding is in contrast with previous research by Prince (2006) who found that early years' teachers equated the environment with nature because in my study some equated the environment with the human-made environment too.

A contrast was noted in the data of Amie's and Ms. L's perceptions of nature differed because Amie understood the environment as being made up of natural elements; whereas Ms. L included both the natural and the human-made environment in her definition. This might indicate that since Ms. L did not include ESD-related activities, she did not influence Amie's definition of the environment. Possibly, in

Amie's case her parents were more influential than the teacher. Another contrast was noted in three children's data in Ms. P's classroom, where Denzil, Ayida and Thea described the environment as nature. During drawing interpretation, Thea said that Ms. P had talked to her about the environment as nature and so Thea drew a picture of nature the way Ms. P described it to her. This indicates that Ms. P could have influenced Thea's perceptions of the environment as nature by intentionally preparing lessons about the environment prior to my visit. It could also be the result of a misunderstanding of what my study was about, in the sense that Ms. P must have thought that I was going to judge her pedagogy, or her lesson content, rather than children's understandings of an issue. Another possible explanation could be that Thea interpreted Ms. P's definition differently than that intended by her teacher.

Four teachers, Mr. D, Ms. M, Ms. A and Ms. N, referred to the environment as nature, which they believed was also essential for the well-being of humanity. A similarity was noted between these educators' and children's definition of the environment. This indicates that some educators could have influenced some of the children's environmental worldviews through classroom and school activities to certain extent, but not only.

Educators' perceptions of environmental sustainability were also explored. Mr. D, Ms. A, Ms. P, Ms. M, and Ms. N perceived environmental sustainability as protecting natural resources and they felt that it was their duty as educators to protect natural resources for the future benefit of younger and future generations. A similarity was only noted in Francesco's, Ms. M's, Ylenia's and Ms. N's data regarding environmental sustainability as meaning the protection of natural resources and the maintenance of balance of natural capital. Therefore, the extension of

resources available to satisfy human needs now and in the future influenced their perceptions of environmental sustainability. Like children, educators attributed people with the responsibility to ensure and maintain environmental sustainability.

Given both school's high environmental ethos, educators encouraged children to participate in environmental activities. Particularly, some educators said that they tried to include environmental learning in their practice whenever possible, out of their own interests. This finding is in line with international reports by Davis (2010) and Davis and Elliott (2014) that ECEfS is usually characterised by individual educators' or school's efforts rather than a co-ordinated approach within this sector of education. Therefore, in the case of some educators, any environmental learning that was taking place occurred inside the school setting out of their own personal interest, in addition to those environmental activities imposed on them by *EkoSkola*. I will discuss this programme in detail in the next chapter. Barraza (1999, 2001) considered the school's environmental ethos to have an important role in the acquisition of environmental information by children. She contrasted schools with high ethos with those with no particular environmental agenda and found that children from schools with a higher environmental ethos actually had more pessimistic views than children from schools with lower or no particular environmental ethos. This contrasts with the optimistic views in my study discussed above, however, the precise way in which school ethos affected children's perceptions of the environment needs further exploration.

Different environmental concerns, ranging from local to global, were discussed by educators during the interview. While it is difficult to ascertain whether educators influenced children's perceptions, a closer look at the data indicates that



there was commonality in these children's and educators' shared views: all of their concerns started with concern for local environmental issues. Possibly, like in the case of children's perceptions and family influences discussed above, this finding may support the idea that focusing on local environmental issues would enhance children's and educators' interests in such issues.

Teachers' pedagogy in relation to environmental sustainability was influenced by children's age and their role as educators. While some educators believed that children were too young to deal with environmental sustainability issues, others felt that if such issues were explained in a way that makes sense to children, young children could be able to understand some environmental issues. While educators' actions were in the children's best interests and in accordance with Article 3 of UNCRC (UN, 1989), this assigns children to a developmental stage that creates a division between adults and children, where children are considered to be incompetent, immature and vulnerable, thus denying them the right to have an opinion and a say about environmental sustainability. While it is true that children are vulnerable, they are not incompetent and can voice their opinions. In fact, children in these teachers' classrooms were able to discuss issues of environmental sustainability. Engdahl and Rabušicová (2010) too reported that adults were influenced by children's age and tended to underestimate the ability of children, aged 2 to 8 years, to talk about the logo about sustainability.

Some educators believed that children could understand certain environmental issues and they helped them to do so by integrating some environmental learning into their practices. Mr. D felt his role as a head of school was to protect the environment for the well-being of current and future generations

by encouraging PEB in school, as well as encouraging parents to participate in this endeavour. This could indicate a reason why Mr. D, Ms. P, Ms. N and Ms. M supported children to form some ideas about the environment and sustainability and they believed that nurturing the children's interest facilitated children's perceptions of environmental sustainability as participants in the school. Consequently, these educators supported children to form some ideas about the environment and sustainability and they believed that nurturing the children's interest facilitated children's perceptions of environmental sustainability as participants in the school. Theoretically, children's understanding of environmental sustainability was mediated by the teachers' and head teacher's teaching practices and strategies, which formed the conditions in which children's perceptions of environmental sustainability were supported by the culture of the school and by guided participation (Rogoff, 2003) from their educators.

Educators tended to focus on environmental issues rather than address their causes in relation to social, cultural and economic situations. This has also been supported by local research (Bezzina & Pace, 2004; Mifsud, 2012; Mayo et al., 2008; Pace, 1995, 2007, 2009). Interestingly, educators indicated that they were reluctant to deal with the political aspect of environmental sustainability as it might have led to a threat to their employment and future prospects. This point has been taken forward by Mifsud (2012), who reported that some Maltese do not challenge their superiors for fear that there would be repercussions for their families, particularly with respect to the future employment of their children, if they were to challenge the status quo. Since all educators were Government employees they were unwilling to challenge the status quo for fear of discrimination which would result

in a threat to their job security. This perspective is counter-productive to my description of ESD (see Chapter 2), and even ECEfS. Only by looking at the different reasons underlying environmental issues can children really learn how to deal with these issues eventually create change. Maintaining the status quo could lead to more harm in terms of environmental degradation for two reasons: first, children do not learn how to critically deal with an issue, and second it would steer away from the true meaning of ESD which is aimed at fostering critical thinking skills in citizens, even young children, an issue which is further explored in the next chapter. Possibly this is an example of the culture of resistance to change described by Pace (2007) which might also have led to teacher under-training in the topic. In fact, local research (Bezzina & Pace, 2004; Mifsud, 2012; Pace, 2009) has shown that many Maltese educators still requested teaching resources for successful implementation of ESD in Malta because they felt under-trained and believed that resources for the effective implementation of ESD were difficult to produce, an attitude which undermines teachers' professional status.

#### ***6.2.1.5 Inter-generational influences.***

As noted in Chapter 3, influences in the microsystem are bi-directional, meaning that parents can influence children but children can also influence parents. Child-to-adult inter-generational influences were observed in four cases, where children were influenced by the school's pro-environmental practices and in turn they transferred that knowledge to their parents, particularly recycling, energy and water conservation strategies in their homes. Natasha and Robert confirmed that their children, Sarah and Ylenia, were able to influence them to take pro-environmental actions and adopt water conservation strategies in their homes.

Similarly, Jeannette and Georgia told me that they began recycling following Dalton's and Denzil's desire to participate in the school's recycling competition. Indeed, both water-saving strategies and recycling, focus on local solutions to local environmental problems. Thus, by focusing on local environmental issues, these children were able to influence their family's behaviours. Indeed, this finding concurs with that of Duvall and Zint (2007) and Ballantyne et al. (2001b) who suggested that focus on local issues could possibly lead to inter-generational transfer of knowledge, from child-to-parent. My finding is also consistent with findings reported by Ballantyne et al. (2001b), Vaughan et al. (2003) and ECEfS researchers such as Davis et al. (2005), Davis et al. (2008) and Stuhmcke (2012), who found that children were capable of influencing their family's environmental attitudes and knowledge. Rickinson (2002) too asserted that by participating in EE activities children can influence the environmental attitudes and behaviours of their parents but he warned that often these influences are facilitated by programmes that are enjoyable for children rather than the result of an automatic transfer. Rickinson's (2002) suggestion can be reflected in Sarah's, Ylenia's, Denzil's, and Dalton's responses, when they indicated that they enjoyed the school's environmental learning programme. It seems to have helped them to transfer that learning to their parents. My finding contrasts, however, with findings reported by Sutherland and Ham (1992) who found that although sixth grade Costa Rican children may pass on environmental information and ideologies to parents, however, such transfer of knowledge is often unreliable and vague.

During my observations in schools, I noticed that both schools encouraged children to recycle. In Liam's case in particular, I observed child-to-community

influences. Liam's interest in recycling helped him encourage the local business community to recycle more and help the school win a recycling competition. While it might be argued that Liam's interest was primarily in his school winning a recycling competition, his recycling efforts cannot be discounted because they contributed towards ensuring environmental sustainability in his community in terms of recycling. This can be explained from a bio-ecological perspective (Bronfenbrenner & Morris, 2006), where through participation in the school's recycling competition at the level of the microsystem, Liam was able to influence the recycling practices of the business community at the level of the exosystem. Similar findings have been shown by Stuhmcke (2012), who reported that children aged between 3½ to 5 years influenced their local community's actions, where for example shopping practices were changed when children made recycling posters.

Another surprising finding was related to inter-generational influences from other family members. Although none of the children's grandparents participated in my study, grandparent-to-child inter-generational influences related to environmental sustainability were evident in three cases: Ayida's, Thea's and Francesco's. Ayida said that she recycled with her grandparents. Thea recalled being taught about water conservation by her grandfather and I observed Francesco setting aside leftover vegetables for his grandfather's rabbits. From a socio-cultural perspective (Rogoff, 2003; Vygotsky, 1978), the extended family acted as a role model for these children's environmental learning, where through interactions within the ZPD and with guided participation, grandparents acted as experts and taught them something about recycling, water conservation and redistribution of waste, respectively. From a bio-ecological perspective (Bronfenbrenner & Morris, 2006), this is an example of

how something happening at the level of the exosystem can have an influence on the child. My finding points to the importance and significance of the extended family in influencing children and is interesting for ECEfS because while inter-generational influences between grandparents and children have been studied in other areas of education, for example by Liu and Kaplan (2006), Newman (1980) and Strom and Strom (1995), grandparent-to-child inter-generational influences in ECEfS are scant and need further investigation. My finding is in line with that of Musser and Diamond (1999) where the pro-environmental attitudes of children, aged between 3 years 4 months and 6 years 1 month, were reported to have developed from a wide variety of influences, such as siblings, teachers, grandparents, media and books.

#### ***6.2.1.6 The role of adults.***

Elliott (2010) called for adults to be the significant ones in promoting young children's connections with nature. A view shared by Rachel Carson (1956, 1998) who believed that the critical role of adults and stated that, "A child needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in" (p. 55). Research discussed in Chapter 2, suggested that children's competence to advocate for, and take a position on, environmental issues can expand as they participate with their families and educators in addressing real-life environmental issues in their own communities.

My findings indicate that adults played major roles in supporting children when they took pro-environmental actions and often acted as role models for children's PEB, especially through the demonstration of their own actions. In this regard, Chawla (2006) concluded that childhood experiences such as fishing, hunting, camping and family vacations, influenced children's future attitudes towards

the environment. Interestingly, all of these activities would generally involve the participation of children and adults. Indeed, Chawla (2006) and Prince (2006) confirmed that, beyond the direct experience with nature, adults play an important role in showing best practices towards nature. Therefore, I argue that adults who share experiences in environmental sustainability with children may have the greatest impact on life-long dispositions towards the environment. Nevertheless, my findings report that not only adults but also children had an important role to play in environmental sustainability by demonstrating care for the environment. Indeed, like in Stuhmcke's (2012) study, children in my study also motivated and encouraged their peers and family members to engage in PEB.

#### ***6.2.1.7 The media.***

The media is an example of a distal process, described by Bronfenbrenner and Morris (2006) which can have either a direct or an indirect influence on children. Children's data suggested a relationship between media viewing, some of their perceptions of environmental sustainability and their proposed PEBs. Children's ideas about the influence of media varied from positioning the media as a powerful influence to insignificant. Access to television varied in households, yet reference to television programmes came up frequently during interviews with children and parents.

The media influenced some children's perceptions of recycling. For example, *Go, Diego, Go!* and *Dora the Explorer* cartoon series influenced Sarah's, Denzil's, Amie's and John's perceptions of recycling. Particularly, Denzil and John said that they emulated Diego's and Dora's behaviour by recycling like these cartoon characters did. Thea and Liam mentioned television in general as an influence on

their perceptions about the environment. Francesco talked about the film *Ice Age* and how he learnt about certain environmental issues from watching it. Francesco also used creatures from the film *Lord of the Rings* to convey his ideas about people who chopped down trees, who he referred to as “orcs”. Francesco turned to the media to help with his difficulty in finding the right words to express his ideas. This does not mean that the film *Lord of the Rings* influenced Francesco’s perceptions of environmental sustainability but he was able to convey meaning by using these creatures to portray those who cut down trees and cause environmental damage. It seems likely that while children mentioned television as influential, it had a minor influence of their perceptions of environmental sustainability. My finding contrasts findings reported in past research (Brothers et al., 1991; Davis, 2010; Keliher, 1997; Murphy, 1993; Ostman & Parker, 1987; Payne, 2014), which suggested that television and the media are primary influences on children’s perceptions of the environment.

#### **6.2.1.8 Politics.**

Local political decisions about environmental sustainability were influential at both home and school levels. Local political decisions, which from a bio-ecological perspective (Bronfenbrenner & Morris, 2006) were taken at the level of the exosystem, had an influence at the level of the microsystem of the home in two cases. The first was Ayida’s case, where a local general election campaign influenced Ayida’s and Jacqueline’s perceptions of power stations in Malta, which they described as factories which produce cancers. To understand the significance of this finding one has to take a look at the political climate in Malta at the time of the data collection. Indeed, at the time of the data collection there was a political general



election campaign in Malta, which centred round issues of air pollution from power stations. Ayida and Jacqueline told me, their perceptions could have been influenced by the leader of the Labour party at the time, Dr. Muscat, who as part of his electoral campaign in 2013 frequently insisted that the power stations in Marsa and Marsaxlokk were factories which produced cancer. It seems that in this case, political influences negatively affected Ayida's and Jacqueline's perspectives, in that it led to misconceptions about cancer, power stations, emissions and environmental sustainability. Possibly, this political focus could explain why Ayida, and even Liam and Francesco, perceived the two power stations in Malta as posing health risks to people. This might not be the only reason why these three children perceived power stations as a health threat. In fact, the WHO (2009, p. xii) reported that power stations contributed significantly to air pollution and an increase in asthma prevalence in Malta in recent years. This finding has also been supported by local medical research by Montfort et al. (2009) which has shown a rapid increase in respiratory disease among 5- to 8-year-old Maltese children. These reports and children's personal experiences of air pollution could have led to increased awareness of air pollution among the Maltese public, even among these children.

The second was Sarah's case, where Natasha said that her family had benefited financially from a Government subsidy scheme to install solar water heater, solar panels, energy-saving lighting, and manufacture of a water reservoir at home. Although Natasha agreed that initially the family availed themselves of this subsidy scheme for financial reasons, she was also happy that they made their home more sustainable for environmental reasons too. In this case, political decision-making had a two-fold positive influence: financial and environmental, which both

led to two of the pillars of sustainability. In terms of sustainability and in line with UNESCO (2002), Natasha was thinking of the consequences of her actions on the environment and when the time was right, she took the opportunity to ensure a sustainable future for her family.

There were other political decisions, which form a bio-ecological perspective (Bronfenbrenner & Morris, 2006) were taken at the level of the exosystem, or the Government level, had an impact on the level of the microsystem of the school. The Government of Malta is in charge of establishing the NMC (Ministry of Education, 1999) for all schools in Malta to follow. ECEfS did not feature in the NMC (Ministry of Education, 1999) used at the time of the fieldwork. A review of the new curriculum showed that despite *The Gothenburg Recommendations on Education for Sustainable Development* (UNESCO, 2008) to teach children about sustainability in the early years, ECEfS did not specifically feature in the recent NMC (Ministry of Education and Employment, 2012), rather ESD was included within this curriculum as a “unit” to be done as part of the formal curriculum, thus compartmentalising EE as another subject to be covered only in upper primary and secondary levels. As discussed in Chapter 2, ESD requires the re-orientation of educational systems and structures, as well as teaching and learning towards sustainability, rather than merely considering ESD as an extra subject within the existing educational system and curriculum.

There were some school policies which had an influence on Mr. D, for example the policy issued in 2012 by the Ministry of Education and Employment, in which the schools were asked to spend 10% of their Government’s funding to implement strategies that reduced the school’s carbon footprint. From a bio-

ecological perspective (Bronfenbrenner & Morris, 2006), the policy issued by the Ministry of Education and Employment is an example of a distal process, which indicates that decisions taken at the level of the exosystem can have an impact on the level of the microsystem.

Conditions of teachers' service are issued by the Ministry of Education and Employment for all head teachers and teachers to follow. A number of prominent issues were highlighted by educators regarding the vast syllabus, curriculum constraints, lack of resources, lack of time and lack of teacher training courses in ESD as influencing how much environmental learning they included in their practice. A condition of service that impacted teachers' practices with regard to environmental sustainability included the lack of professional development opportunities in ECEfS. These early years' teachers felt that they lacked the support needed to include ECEfS in their teaching. Indeed, Mr. D confirmed that decisions about any activities happening at school were discussed during staff development meetings, which took place once per term for an hour and half and after school hours. My finding is consistent with local research by Bezzina and Pace (2004), Mifsud (2012) and Pace (2009), which showed that the majority of Maltese teachers requested teaching resources as part of the successful implementation of EE in Malta because they felt under-trained and believed that resources for the effective implementation of EE in Malta were difficult to produce. My finding is also supported by UNESCO's (2014) international report that found that educators and primary caregivers in different countries worldwide lacked the capacity to incorporate ESD in the early years.

From a bio-ecological perspective (Bronfenbrenner & Morris, 2006), this is yet another example of how decisions taken at the level of the exosystem directly

influenced the level of the microsystem. Therefore, educators' working conditions, that translated into school and classroom practices, which included the obligations to cover the syllabus and to comply with professional expectations, directly influence the conditions of learning. In turn, this had an impact on the children's exposure to environmental activities at school which focused on education *about* the environment rather than education *in* and *for* the environment. The data spoke of the need for more planning time and more professional development course for educators in ESD, and in particular in ECEfS, which would enhance their professional teaching skills and would be more valuable than simply presenting teachers with a few resources and a syllabus to cover without any prior training, as has been the case in both schools.

#### **6.2.1.9 Culture.**

As discussed in Chapters 2 and 3, collective cultural values can contribute to environmental sustainability since it is believed that these are transmitted when the child interacts with other members of the community. In keeping with the above discussion, children's perceptions of, and attitudes towards, environmental sustainability did not exist in isolation but were influenced by the cultural, social and political norms of Maltese society. As discussed above, all children focused on recycling, and all children, except Jazlyn, focused on traffic and air pollution, two environmental issues which are most discussed in Malta, even in the Maltese political arena. This finding bears similarity to that of Barraza (2001), who stated that the perception of children, aged between 7 and 9 years, of environmental problems were related to their direct experiences of the problem within the culture of their community.

Interestingly, despite some children's concerns for and interests in environmental sustainability issues, some children still expected others to change their behaviours for the children's own benefit or for the benefit of their families, thus exhibiting egoistic value orientations. Particularly, Ayida, Thea, Amie, and Jaylee reflected what I term the Maltese "car culture"<sup>10</sup>, where even though they believed that cars were causing both environmental and health problems, they still believed that private car use was a necessity in Malta. In other words, these children expected others to limit their private car use so that they, and their families, would avoid facing traffic congestion and air pollution but they said that they were not willing change their behaviours with regard to private car use. This is an example from my data of the value-action gap (Blake, 1999) where even though children indicated awareness and understanding of certain environmental problems, they did not follow through to take action to remedy the problem. Through participation in their community, at the level of the macrosystem (Bronfenbrenner & Morris, 2006), these children learned about private car use prevalent in the culture of their community. Through the interactive guidance of adults, in this case their parents, they appropriated these cultural practices and artefacts and thus progressed and developed in ways that were consistent with the culture of their communities (Ellis & Rogoff, 1982; Wertsch, 1985).

---

<sup>10</sup> Private car use is a prevalent perspective in Maltese society and the national statistics reported by the NSO (2013) prove this. Even though there are a high number of vehicles on Maltese roads and the Maltese experience traffic congestion every day, NSO (2015) reported that the number of licensed cars in Malta continues to increase annually. Between 2013 and 2014 there was an increase of almost 20,000 vehicles in Malta (NSO, 2013, 2015), a huge number considering the geographical size and the population density of the Maltese Islands. Perhaps this is an example of what Pace (2009) referred to as a culture of resistance to change, where although people are aware of the issues, some of their behaviour such as driving are causing, they still resist change.

#### **6.2.1.10 Religion.**

As discussed in Chapter 2, the Roman Catholic religion and the Maltese culture are mingled together in such a way that oftentimes it is difficult to separate one from the other. Roman Catholic religion featured as an influence in 3 out of 10 parents. Natasha, Robert and Marija perceived the environment as including natural elements created by God. An important finding in my study is that the idea of God as the creator of nature, or the environment, was specifically mentioned by these three parents but absent from their children's data. Indeed, none of the children in my study made direct reference to God in relation to the environment. The children of these three parents, Sarah, Ylenia, and Liam, turned to personal experiences to explain issues and situations which they could not easily explain using simple language. While in my study I did not set out to explore the relationship between religion and environmental sustainability, children's data suggests that the influence of the Church is diminishing in younger generations. How this relates to environmental sustainability would be an interesting prospect for future research.

This is not an unusual finding when we consider the parents' data but is an unusual finding when we consider the children's data. These parents were brought up at a time when the Church in Malta was powerful. Nowadays, although the Church still has some influence and power, it has diminished significantly and therefore these children have probably been influenced less by the Church's power than their parents were. This finding is in contrast with findings by Gonzalez (2013) who reported that 4- to 6-year-old Maltese children made reference to the Roman Catholic religion to explain issues they found otherwise difficult to explain using simple language, such as life and death. Gonzalez (2013) reported that children in

her study suggested notions of care and respect for the environment and connected this notion to their Christian faith, which was absent from the children's data in my study. Children in Gonzalez's study attended Church and State schools in Malta but she reported that there was not much difference between the two contexts in terms of the children's reference to religion in relation to environmental sustainability.

Even though children in my study did not specifically mention religion as an influential factor, to a certain extent religion may have been an indirect influential factor in their views of nature as an asset discussed above. In other words, ethics of the Roman Catholic religion, which are embedded in the belief that nature exists only for the benefit humans, where God planned created humans to rule, reproduce and establish dominance over the Earth, could be concealed within the children's anthropocentric worldviews. Such a belief system sustains the Western anthropocentric worldview and is exploitative to the environment because only human needs and interests are considered as essential, thus propagating a destructive attitude toward the natural environment. A counter argument, however, has been offered by Kellert (1993), who suggested that there might be a biological basis to anthropocentric worldviews, particularly the need for survival. Thus, a concern for nature could ultimately be "driven by a profound sense of self-interest and biological imperative" (Kellert, 1993, p. 60). Consequently, it would be both fascinating and valuable to explore potential relationships between religions, religiosity, and children's conceptions of environmental sustainability.

### **6.3 Conclusion**

This chapter offered an in-depth discussion of empirical data from children, parents and educators, and linked it to the critical examination of key literature

outlined in earlier chapters. It presented the findings from the cross-case analysis of the 12 case studies. The complexity of children's perceptions of environmental sustainability and the contextual influence upon them have been explored. While children's perceptions of environmental sustainability were similar to my definition of the term as presented in Chapter 2, most significantly children's perceptions of environmental sustainability were influenced by a variety of contexts and it was difficult to indicate which context was most influential.

My findings have identified clear opportunities for developments ECEfS in that overall, young children's responses highlighted the need to encourage pro-environmental practices that can make a positive difference to the environment. Positive changes in attitudes and behaviours on the part of individuals and society will ensure environmental sustainability. Strong awareness of the long-term benefits of sustainable practices are required for individuals (particularly young children), either at the individual or societal level, to change their attitudes and behaviours in relation to environmental sustainability. Additionally, there are a number of areas in the field which would benefit from further research so that a clearer picture of children's perceptions of environmental sustainability can emerge. These will be discussed in the next chapter.



## CHAPTER 7: CONCLUDING COMMENTS

My research has provided a number of new insights into children's perceptions of environmental sustainability and the contextual influence upon these. The motivation for this has been to expand current knowledge in ECEfS, and to promote its practical application in relation to developing of ESD for this age group. Additionally, my study has enabled new perspectives to emerge from the findings and has also generated suggestions for potential further research.

In this final chapter I outline my final reflections on the research findings and its process, and its limitations. Finally, I highlight the contributions and implications of my study and make recommendations for future research.

### 7.1 A Critical Reflection of the Findings

In Chapters 1 and 2, I argued that the Maltese education system is based on academic achievement because it is built on the needs of the Maltese industry and deviates from the principles of ESD (Pace, 2007). In so doing, it perpetuates the dominant economic paradigm and reproduces the existing social conditions. *EkoSkola*, which was introduced in Malta with the intent of providing a good starting point and a mechanism for engaging schools in ESD processes (Pace, 2007), was followed by both schools in my study. My data has shown that *EkoSkola* has operationalised the term ESD in a techno-centric manner (Orr, 1992) because of its primary focus on behavioural activities, such as recycling, and water and energy conservation within the local context rather than focusing on the big environmental issues.

In line with previous research (Boeve-de Pauw & Van Petegem, 2011; Cincera, Kroufek, Simonova, Broukalova, Broukal, & Skalík, 2015; Pace, 2007;

Pirrie, Elliot, McConnell, & Wilkinson, 2006), my data suggest that *EkoSkola* made positive contributions to children's environmental knowledge. However, in Chapter 2 I argued that knowledge is not enough on its own to encourage people to take pro-environmental actions. Furthermore, my data suggest that both schools were failing to fully integrate ESD into the curriculum. Both schools used ESD processes as "add-on" activities, or units, to encourage children in taking local actions, in an attempt to make them think critically and in developing their self-esteem. One cannot deny that topics in the *EkoSkola* programme are significant for Malta since it lacks natural resources and even the little natural landscape available is being used by developers and the Government with the aim of increasing the country's economic growth. However, this finding points to the fact that apart from following the *EkoSkola* guidelines, schools were also faithfully carrying out the intention of the NMC (Ministry of Education, 1999) and the policies issued by the Ministry of Education and Employment, which were aimed at creating citizens able to abide by the status quo and able to contribute towards the country's economy. Consequently, the notion of ESD was strongly equated with the concept of keeping the environment and the school clean, while engaging in the reproduction of the economic paradigm of education, therefore, deviating from my definition of ESD presented in Chapter 2. Furthermore, my data is supported by previous local and international research (Mifsud, 2012; Morgensen & Mayer, 2005; Pirrie et al., 2006), which showed that even though *EkoSkola* encouraged some active participation and social change, children's environmental learning seemed to have been compartmentalised as a unit to be dealt with, specifically to obtain, or maintain, the *EkoSkola* certification, particularly the *Green Flag* award.

While ESD calls for situated, whole-school approaches that engage children with more critical and participatory pedagogies, mechanisms in place in both schools were influenced by policies, which hindered the effective implementation of ESD. It seemed that there were two kinds of restrictions regarding the implementation of effective ESD in the schools: policy restrictions imposed by education authorities and hidden restrictions imposed by the community. Restrictions, such as rules on what goes on in the classroom and the financial costs involved and hidden restrictions imposed by education authorities influenced the practice of implementing ECEfS in the classroom. Therefore, I argue that the real scope of ESD was only partially achieved through *EkoSkola* and my study served to show which type of school activities encourage, or hinder, engagement and interaction in ESD.

There was a lack of joined-up thinking between the schools' environmental activities in general and teachers' pedagogy, an important element when developing systemic approaches to ESD. Therefore, while at first glance there might be some processes of alignment with ESD through environmental activities, these tended to be dominated by the didactic relationships of control. My study suggests how a pure focus on a programme, such as *EkoSkola*, might actually limit the extent to which schools integrate thinking about environmental sustainability into their everyday practices, in that it seemed to limit their imagination for engagement with ESD and environmental sustainability. Perhaps this could be the consequence of the narrow nature of *EkoSkola* and the tendency of teachers to be able to show that they had covered the recommended sections in the programme. It seemed that any ESD processes included in both schools were fragmented, such as solely focusing on recycling as a main activity for achieving environmental sustainability, rather than

focusing on the processes of democratic decision-making, critical thinking and situated learning, which are key aspects of ESD.

Both St. Nicholas Primary and St. Mary Primary focused on learning *about* the environment (Davis, 2010) and engaged in what called Vare and Scott (2007) called ESD1, which resulted in measures that reduce environmental impacts of human activity. This could be one of the reasons why children expressed awareness of, and concern for, certain environmental problems in their community and the environmental impact of human intervention in nature. Indeed, the fact that children had formed such strong notions of the environment shows that many ideas have already permeating their world. However, while an ESD1 approach was good, it left out ESD2 (Vare & Scott, 2007). This kind of education lacked the focus on education *for* and *in* the environment (Davis, 2010) and also lacked the social, economic, political and cultural aspects associated with environmental sustainability issues. Therefore, it did not teach children to think about what it means to be more sustainable, to be critical and reflective, and was not enough to teach children about the broader sustainability issues that must be addressed (Elliott & Davis, 2009). My findings are supported by Maltese research (Bezzina & Pace, 2004; Mifsud, 2012; Pace, 2009) which showed that the current trends of EE in Malta tend to revolve around environmental issues rather than address the deeper causes of environmental sustainability. Taking account of the situation in international ECEfS contexts, Davis (2010) concluded this could be due to the fact that usually education *in* and *about* the environment are easily incorporated in ECCE, however, she explained that this type of education is not enough to create the foundations for sustainable living because it fails to address the human-environment interactions as causing

environmental sustainability issues and argued for ECEfS that caters for education *for* the environment in order to create social change. The literature is clear that when ESD is understood in this manner it has a narrow focus, because as Sterling (2001, 2010) pointed out, this kind of mechanistic education system requires a radical shift. So, my data suggest that in an attempt to accommodate the day-to-day requirements of the education system, schools were only partially implementing ESD. Therefore, as was also evident from the data presented in the previous two chapters, I suggest that in order for *EkoSkola* to effectively implement ESD at the school level, educators need to better understand ESD. This is where teacher training becomes useful in promoting the integration of ESD across the curriculum.

The human factor can be stressed by integrating social, cultural, economic and political perspectives into the study of environmental sustainability issues. For example, a greater emphasis on environmental sustainability and social justice not only frames ECEfS in a multicultural context (e.g. exploring environmental impacts across cultures, gender, ethnicity and class), it also emphasises the fact that both physical and human processes shape the environment. My data has shown a preoccupation by children with natural elements of the environment, or an emphasis on nature conservation. However, such preoccupations without an appreciation of the human element can undermine the broader purpose in ESD, and consequently ECEfS, as discussed in Chapter 2. Furthermore, according to recent research (see Chapter 2), knowledge about natural phenomena and humans' impact on the environment is not enough to be able to act sustainably. By examining children's surroundings using an integrated (both human and physical) approach to teaching and learning, children's understanding of the human-environment relationship is

strengthened with an understanding that both natural and human forces are constantly shaping the world.

Environmental sustainability issues are not simply about human-nature relationships but also about conflicts of interest between, and within, humans (Schnack, 1998). As noted in Chapter 2, an action competence approach provides children with insight into the social, cultural, political and economic issues, as well as conflicts of interests, related to environmental sustainability issues. This approach implies a desire to solve a problem by taking action to create change. However, for children to acquire action competence they need to be aware of the issue and its conflicts of interest. Consequently, they need to be able to think critically and reflectively, which requires analysing and engaging with issues to be able to evaluate possible solutions.

Indeed, research (Davis, 2010; Davis & Elliott, 2014; Hart, Biggeri, & Babic, 2015; Klefstad, 2015; Prince, 2006; Stuhmcke, 2012) supports the idea that from a very early age children are capable of being critical and reflexive thinkers and their thinking skills can be enhanced and developed through appropriate pedagogy and practices. Therefore, children need to be involved in informed and democratic discussions about different range of environmental sustainability issues so that through debates and critical thinking they gain awareness and empowerment that would eventually lead to action competence. This did not seem to be happening in schools. The reason this is important is because for ESD to be understood for its greatest transformational potential then the critical and reflexive qualities central to ECCE need to be incorporated into the delivery of ESD. Furthermore, this critical and reflexive stand is also found in the ESD literature by leading ECEfS experts

(Davis, 2010; Davis & Elliott, 2014; Prince, 2006; Stuhmcke, 2012) who argued that critical and reflective thinking is possible in the early years if the appropriate pedagogies are used. The point that needs to be clearly understood is that an overview of the literature for both ESD, ECEfS and ECCE share the same position on the need for pedagogy to be critical and reflexive.

My data suggested that children had experiences of dealing with some environmental issues in their local contexts but they lacked opportunities to deal with social, cultural, economic and political issues which lead to environmental sustainability issues. In Chapter 6, I argued that environmental sustainability issues and their possible resolutions cannot be effectively addressed unless these factors are understood. This might be interpreted as children lacking the ability to think critically since they were unaware of certain causes of environmental problems. However, this might not necessarily be the case. My study found that young children were interested in, and concerned about, environmental sustainability issues and were able to express their interests about them. This was evident during the study when they discussed environmentally-sensitive ways to treat the natural environment; when they expressed disapproval of loss of species and biodiversity; when they proposed solutions to environmental sustainability issues through their behaviours, drawings, discussions and proposed pro-environmental actions. At face value, such solutions seemed to be very simplistic and sometimes confusing, particularly when they discussed simple solutions and individual action within the local environment to tackle complex global issues. Yet, I argue that such thinking is the first step toward critical thinking and empowerment that could eventually lead to action. This was illustrated by examples such as when children introduced recycling, and water and

energy conservation measures to their parents, which resulted from the children's participation in school activities such as learning about the need to act pro-environmentally. Thus, efforts to make meaningful connections to children's lives must also take into account both their emotional and their physical engagement with environmental sustainability issues. Helping them become more aware of their everyday actions may sensitise them to the collective environmental impact of individual behaviours and cultivate social capital. Taking litter as a concrete example, it was plainly worthwhile for educators to teach children to separate plastics and paper, however, weighing litter each day, measure the amount of water used to brush teeth, and calculate the cost of purchasing versus reusing disposable water bottles could further enhance children's environmental responsibilities and lead to behaviour change.

Based on my findings, I have argued that despite the fact that *EkoSkola* did not necessarily teach children to be critical and reflective, young children in my study indicated that they were able to think critically and reflectively about environmental issues they were familiar with. This could possibly be the result of their upbringing or other aspects in their education system which did not appear in my data. Consequently, they have the potential to take positive action for sustainability beginning in their local contexts, though they need opportunities to participate in learning opportunities which would enable them to participate in positive change for sustainability, especially through co-construction of knowledge and appropriate ECEfS programmes.

While the curriculum in my study was rooted in anthropocentrism, educators were unaware of the hidden values that perpetuate Western worldviews within it and



were also unaware of how this reinforced many of the children's anthropocentric worldviews of environmental sustainability. My data suggest that early years' curricula need to be underpinned by diverse worldviews, particularly ones that emphasise interdependence within the environment. Discussions about ECEfS curricula should be concerned with both what is expressed in classrooms and with the underlying implicit messages they try to convey. By critically analysing their own teaching practices, educators may become more aware of their own assumptions about environmental and sustainability teaching and learning.

Finally, children in my study exhibited a connection with the natural environment both in terms of their ability to conceptualise human-environment relationships and their ability to take personal responsibility for environmental impacts, despite the fact that ESD, and ECEfS in particular, was disconnected from education as a whole. This disconnection prevented educators from devoting adequate resources to the teaching and learning of environmental sustainability issues and concepts. If children are to move toward a more integrated and holistic conception of environmental sustainability, there is a need for ECEfS to be taught as an inter-curricular theme as well. Only then will we be in a better position to conceptualise the connections that exist between environmental sustainability, behaviour and its consequences on the natural environment.

## **7.2 A Critical Reflection of the Research Process**

### **7.2.1 What to look at?**

In my study qualitative data were collected and comprised rich and illuminating accounts of each child's perceptions of environmental sustainability and the contextual influences upon them, which were based on my observations,

participation, and discussions with children and adults. The pilot (see Section 4.5) set out to explore children's perceptions of the environmental impacts of climate change and served as a trial for the main data collection period. By critically reflecting on my data throughout the collection phase, I was able to think about specific aspects of the data and the research process that I might have under- or over-emphasised during the pilot. While findings of the pilot have their value in this thesis, this initial study also helped me understand that exploring children's perceptions of environmental sustainability<sup>11</sup> instead of their perceptions of the environmental impacts of climate change would provide richer data, and led to a change in my approach.

Hence for the main study, I decided to try to provide a comprehensive view of the children's perceptions of environmental sustainability and the contextual influences upon them, rather than focusing on any one area of environmental sustainability, or one group/type of children that might have been considered to be at an advantage or disadvantage in relation to the topic of my research. For this reason, I decided to gather baseline data which would be specifically relevant to the Maltese context. This meant that while my study was broad in scope, it allowed the children to respond within their personal context, and the interpretive and qualitative methodology adopted allowed for this.

---

<sup>11</sup> In Section 2.2, I defined environmental sustainability as the maintenance of balance between the natural, social, cultural, and economic capital of the planet, including all the natural resources, (e.g. the seas, forests and the land) that are present for the use of current and future generations of living communities. By living communities I include in my definition all the living creatures (human and non-human) on the planet.

### **7.2.2 Limitations of the sample.**

Given the particular focus of my study, there were many influential factors that were considered but these were filtered out by my study plan, and which led to some limitations in my study.

One of the limitations of the present study was the number of participants: 12 children, 10 parents, 5 teachers, and a head teacher. This sample was influenced by access into schools and participants' willingness to take part in my study. However, sample size is one of the key elements that make qualitative research distinct. These 12 cases adhered to Stake's (2006) three main guidelines for selecting multiple cases to study, in that each case was relevant to the quintain; provided diversity across contexts; and provided opportunities to learn about complexity and contexts.

As Stake (2006) suggested "An important reason for doing the multi-case study is to examine how the program or phenomenon performs in different environments. When cases are selected carefully, the design of a study can incorporate a diversity of contexts" (p. 23). Children operate in individualistic contexts and so a holistic picture of their perceptions of environmental sustainability would only have been achieved by examining as many of these different contexts as possible. From the outset of my study, I was aware that I could not have given a voice to children without exploring different contexts in which they lived, such as home and school, and without involving some of the different people they interacted with, such as parents and educators. However, this posed some challenges; for example, I was unable to observe children in many different contexts other than in two State schools and one household, by mostly the limited access provided by key gatekeepers. I was unable to gain the perspective of an equal number of children

from each year group due to lack of parental, or child consent. I was only able to interview one head teacher, as the other head teacher did not wish to be interviewed even though this person's perspectives on environmental sustainability in ECCE might have made some valuable contributions to my research. It may have been more advantageous to have participants representing different types of schools, familial structures, and neighbourhoods. Furthermore, I heard from only one father, Robert. One other, Francesco's father, Keith, mentioned his spouse (Julie) as the primary caregiver of family during my first visit to the family, and an interview was only conducted with Julie. These limitations were generated by the focus on 12 cases.

Each case revealed the perceptions of environmental sustainability of individuals in a particular context (Malta) and at a given time (2013). The 12 cases presented in this thesis cannot claim to be typical of all Maltese children's perceptions of environmental sustainability. What they do present are authentic portraits and voices of 12 children, from which clear perspectives can be identified through an inductive process of examining, ordering, and classifying the data according emerging themes and sub-themes. Although data from these few cases were rich and extensive, the outcomes of my research need to be considered in context. The contribution of a sample of 12 children limits the generalizability of the findings and perhaps impedes the transferability of the study to the Maltese, or any other, population. Therefore, this limitation needs to be considered as part of a review of the sampling methods. Specifically, I wanted the reader to understand what is common and what is unique about each case because I did not want to obscure the uniqueness and richness of each case which led to the understanding of

quintain (Stake, 2006). For this reason, the research is presented as “thick description” (Merriam, 1998; Stake, 1995, 2006) of each case.

### **7.2.3 Limitations of the methodology.**

The methodology in my study relied on an interpretive approach. I had to be cautious not to overemphasise one aspect or one case more than another and as a sole observer, researcher, and analyst, I had to decide what data to collect and select, and what was to be written in the field notes. For this reason, a reflexive approach was adopted throughout the research process and I stated my relative positions, personal value systems, and areas of subjectivity from the outset. To this end, I kept a researcher’s journal in which I critically reflected on the data collection process. This critical reflection assisted me and guided me to put forth the children’s ideas and experiences and helped me stay focused on the data that was mostly related to my research questions. During data collection, I endeavoured to remain open to explore whatever was considered salient to the participants in my study.

### **7.2.4 Limitations of the research methods.**

Recently, ECCE researchers are positioning children as interpreters of their own lives and their own experiences, rather than as informants of research (Clark & Moss, 2011), even in environmental research (Barratt Hacking et al., 2013; Barraza & Robottom, 2008; Davis & Elliott, 2014; Sorin & Gordon, 2013). I also adopted a child-centred approach and research methods that help elicit young children’s views and make their voices heard. Although the research methods I used provided sympathetic and respectful opportunities for the children to represent themselves with adult support, they had some limitations too.

Communication between the children and myself was facilitated thanks to the use of arts-based research methods. Drawing on appropriate research techniques identified in the literature as well as my teaching experience with young children, I ensured that they were age-appropriate, developmentally-appropriate, and offered children a range of options with which to share their ideas. A detailed and extensive annotated record of my observations complemented the children's participation in the research providing a contextual framework for the analysis. The use of photograph interpretation, children's drawing and their interpretations, together with the use of the puppet, helped me to gain an in-depth understanding of children's perceptions of environmental sustainability that would not have been possible to obtain from interviews alone. I noticed that the children could communicate with me during the drawing activity and drawing interpretation, particularly with help of the puppet. Children demonstrated that they were able to articulate some complex thoughts through arts-based activities, thoughts that I believe would have been difficult to articulate using linguistic methods alone. This finding is reinforced by other researchers, such as Barratt Hacking et al. (2013), Barraza and Robottom (2008), Clark & Moss (2011), Davis and Elliott (2014), and Sorin and Gordon (2013), who acknowledged the significance of the arts-based research methods as communicative tools to assist children in expressing their worldviews.

Some assumptions were made in the construction of these research methods that needed to be explored. The research methods I used were particularly appealing and engaging to most, but not all, children. For example, Liam found the idea of using the puppet to be very naive. He was an articulate child and the rationale for not using the puppet with him was that he felt like I was treating him like a "child"

by using the puppet, which he said he did not like. This reaction was not directed towards me personally, but appeared to be a manifestation of Liam's maturity. Other examples include when Liam chose to go outside to play instead of draw, and Jaylee and Ylenia did not want to colour their drawings.

Another assumption that I made in my study was that all the children would have certain drawing skills. This proved not to be the case. Some children, like Sarah, Dalton and Jazlyn, had not yet mastered the skills of drawing and it took them a long time to finish their drawings.

Usually, researchers working within the NSC (see Section 3.7) would ask children, as active participants in research, to take their own photographs about the research topic. However, due to data protection issues, in my study I was denied permission by school administrators to ask children to take their own photographs, even when I suggested that children only take photographs of spaces they had access to. Only Francesco provided me with a photograph (see Figure 5.21), which he took at home, and then again this was done with his parents' consent.

Since I was denied permission to ask the children to take photographs, I used photographs, which I had either created or were created by someone else and were available online. These photographs acted as visual prompts, which would have given children the possibility of visualisation of the issue under study and enable them to verbalise their thoughts about it. However, these photographs had some limitations. I assumed that children would find the photographs amusing; they might have increased children's interest in participating in research; and would have eased the strangeness of being interviewed. It was not until I started collecting the data for the main study and later analysing it, that I realised that this method was perhaps less

useful then I had expected. Indeed, during the data analysis I started to question the value of using ready-made photographs in research with young children on environmental sustainability. I now understand that children's responses might have been influenced by my choice of photographs and by their life experience that led to their interpretations.

I acknowledge that in these photographs I focused on the environmental sustainability issues that concerned me the most, some of which might not have been of concern to the children. In so doing, I moved away from the constructivist perspective toward an almost positivist perspective where I almost tried to "measure" children's knowledge about these issues. When using the photographs, I thought they would lead to a more reflective discussion with the children, and provide an authentic record of the children's real world in relation to environmental sustainability. In hindsight, looking at photographs as a research method from a constructivist perspective, I realise that photographs represent just one subjective perspective of reality: the photographer's. As indicated by Baker and Smith (2012), photographs are "socially produced artefacts, which require a consideration of context, power relations within which photographs are produced, and the limitations of what can and cannot be photographed" (pp. 20-21). For example, photographs can only represent just one social milieu while ignoring or undermining others; the context of photographs can be a result of a political process where certain aspects are highlighted while others are not; and photographs represent a negotiation process between what is photographed and what is not.

Another limitation of photographs was that not everything can be photographed. The abstract environmental issue of CO<sub>2</sub> is a typical example. While



children might not have talked about CO<sub>2</sub> because it is a complex issue which they still cannot understand, the fact that I presented the children with a photograph of a power station with smoke coming out of its chimneys might have created certain thoughts in children's minds. In using photographs I have given photographer's voice more power than the children's voices.

Clark and Moss (2011) and Zartler (2014) asserted that visual prompts in research with children, such as photographs and drawings, offer visualisation of the issue under study; enhance children's participation in research; and help children overcome linguistic barriers. Despite my attempts to minimise children's difficulties in vocalising their ideas, photograph interpretation still placed emphasis on children's linguistic and conversation skills. During the photograph interpretation session, I realised that some children had insufficient vocabulary and knowledge to describe the photographs. Although I gathered some important data from these conversations, I realised that having children describe photographs and expecting them to discuss the issue I had in mind was a difficult task for them. By the time the photograph interpretation was completed, some children started showing signs of fatigue and, in some cases, were not engaging in follow-up conversations. However, those who did, demonstrated a significant degree of sophistication in how they responded to my questions, which at times challenged my assumptions about what children think. At other times, however, photographs stimulated narrations on issues that were not displayed, such as water conservation, whale-hunting, global warming, and war. My informal conversations with the children that followed the photograph interpretation sessions, demonstrated that even at such an early age, children can be

quite competent in expressing their thoughts and feelings about environmental sustainability.

While analysing my data from the photograph interpretations, I realised how little meaning these data would have had if I relied solely on it, and on how the children described the photographs. It was the follow-up discussions, the observations, the children's drawings and their interpretations, that allowed me to discover how complex their thinking was. This has important implications for research into young children's perceptions of environmental sustainability.

Upon reflection, I now realise that in order to contribute to a better understanding of children's perceptions of environmental sustainability, it is important to adopt a more naturalistic, qualitative approach and employ methodologies that allow children to freely follow their train of thoughts. This is not an easy task, especially in studies involving very young children. Studies like this may use photos (although the children's photographs would be best), they may use semi-structured interviews too but to get further one needs to use naturalistic approaches. In taking this point forward, Meo (2010) suggested that asking children to take their own photographs might promote access to areas of inquiry that I might not have expected; they could enrich the data in unexpected ways, even if this method is time-consuming, expensive, more demanding than traditional interviews, and entails different ethical, methodological and practical challenges. Therefore, I argue for the potential of visual methods, such as children's drawings and children's photographs, as well as asking focus questions related to the children's experiences in the environment as a starting point for further discussion to enhance children's voices and participation in research about themselves, and their views and images of

their social worlds. Selecting a purposeful sample, whose gatekeepers would consent to them taking photographs, and asking children to take their own photographs and give me their representations of their reality would provide a more naturalistic approach to the research.

### **7.2.5 Influencing responses and findings?**

I was aware that my presence as a researcher in the school, in the classroom, and in Francesco's home, might have influenced the responses provided by participants, especially the children. For this reason, I understand that my influence on the research whenever I sensed that this was having a significant impact. I was also aware that my gender and my relationship with children might have had an impact on them too. This might have been the case during the observation period when children referred to me as a teacher, and some even called me "Mum". In fact, they were quite surprised when I asked them to call me by my first name. I reckoned that this required me to explain my role as researcher to them several times before they could understand what I was doing in their classroom.

Deciding how to tell the stories in order to best represent the children's perspectives was not an easy task. The extent of data collected proved to be challenging in terms of data reduction and presentation of the cases. I required an approach which aimed to provide a rounded picture of each child's perceptions of environmental sustainability, by selecting complementary episodes about each child, which when pieced together would reflect their ideas. Ultimately, I followed Marshall and Rosmann's (2011) advice and selected "the most useful data segments to support the emerging story to illuminate the questions being explored and to decide how they are central to the story that is unfolding about the social

phenomenon” (p. 219). Presenting data as research stories in a case form in Chapter 5 revealed some variables in the methodology. There is some discrepancy in terms of robustness of the narrative of each case due to the difference in the observations pattern between Francesco and the other 11 children. There was more data from Francesco as observations with him were conducted at school and at home so his story was stronger and longer than the rest.

When listening to children, researchers have to be mindful about adult-child power relationships (see Section 4.4.1). Children’s agency in my study was evident during observations and drawing interpretations when they were allowed to talk about the environmental issues that concerned them most without being restricted to any particular issues, as well as when they were able to control the digital and voice recorders, and field notes. In terms of ethical responsibilities, short cases had been written up for the 12 children and copies given to parents for information and comment but I did not get any comments back.

### **7.3 Contributions**

My study followed some of the recommendations made by researchers in the ECEfS field and has filled the gaps discussed in Section 1.3. In so doing, it made contributions to the literature; theory; and education, particularly in Malta as will be discussed below.

#### **7.3.1 Contributions to literature.**

My study makes several contributions to ECEfS literature in multiple and innovative ways. My study responded to calls made by Davis (2009) to provide more research in ECEfS on children’s ideas about sustainability topics and by Davis (2010) and Elliott and Davis (2013) who made similar calls and added the need for

more methodologically diverse research in ECEfS. My contribution to the literature is by extending knowledge of young children's perceptions of environmental sustainability and the contextual influences upon them, particularly in Malta.

Davis (2009, 2010) and OECD (2006) have called for research that investigates children's environmental learning within the family. My study is to be the first to explore young children's perceptions of environmental sustainability together with those of their parents, head teacher and teachers, in school and home contexts. This complements the extensive amount of research in EE and ESD that has been carried out with older children and adults. In my study, children were given voice to express their everyday meanings about environmental sustainability when much of the existing research in the field has sought older children's understandings regarding this issue (e.g. Carroll, 2002; Weeks, 2010) or adults. My study suggests that young children (aged 3-7 years), are capable of sharing their own thoughts about environmental sustainability and it supports notions of young children as active meaning-makers with the ability to participate fully in environmental research.

My study provides fresh insights into those aspects related to environmental sustainability issues that impact on children's ideas, both positively and negatively, with particular focus on Malta. In so doing, it has responded to calls by Mifsud (2012) and Pace (2009) for research that explores the perceptions of environmental sustainability of young people in Malta. It adds to our understanding of environmental sustainability from the point of view of young children by continually reiterating the importance of caring for the natural environment in relation to well-being as central features of quality of life of the current and future generations of all living species on the planet. It also helps to bring forth some characteristics of

Maltese early years schooling and Maltese society with regard to environmental sustainability, a multi-disciplinary area which still needs to be studied further.

By exploring how these children came to understand environmental sustainability, and the factors that assisted the co-construction of these ideas, behaviours and attitudes towards the environment, my study offers insights into how the concept of environmental sustainability develops in early childhood. Rather than focusing solely on the nature of young children's perceptions of environmental sustainability, my study locates children's knowledge within the family and the school contexts. This innovative research examined children's knowledge acquisition and knowledge construction within everyday contexts and extends current thinking in ECEfS by working with very young children, their schools, and their families. Therefore, it adds new knowledge regarding the contributions of school, home and family dynamics to children's understandings of environmental sustainability in the early years.

In my study I attempted to distinguish between findings that are case specific (i.e. differences between the children) and findings that apply to all children. Contrary to the expectations of traditional cognitive frameworks, the explanations provided by the 12 young children revealed that their knowledge of environmental sustainability was indeed acquired within socio-cultural (Rogoff, 2003; Vygotsky, 1978) and bio-ecological contexts (Bronfenbrenner & Morris, 2006). Indeed, children's explanations reflected their everyday experiences and environmental messages constructed from an early age. Thus, my study makes a contribution to the literature by revealing that young children's understandings of environmental

sustainability are first a function of their informal learning via everyday activities within the family, and later at school.

### **7.3.2 Contributions to theory.**

In my study it was found that children were interested in environmental sustainability issues, were able to talk about them. My study has contributed to the call for research that merges different theoretical perspectives commonly used in other ECCE research to ECEfS research, made by Cutter-Mackenzie and Edwards (2013). Mackey and Vaealiki (2011) called for research in ECEfS that is “cognisant of children’s rights to have a voice and share their perspectives about early childhood education for sustainability” (p. 83). My study contributed to doing so by bringing together different theoretical perspectives (see Chapter 3) which in turn have brought new insights into the ECEfS field.

These theories were relevant to provide an understanding of the children’s perceptions of environmental sustainability and the contextual influences upon them and assisted the design of my study. My study challenged traditional views of children and supported notions of children as competent being, capable of thinking and take action. As discussed in Chapter 3, developmentalist theories position children as being in need of care rather than being able to care. Contradicting this view, my study provided examples of children caring about environmental sustainability-based on their interests and concerns.

Children were able to influence their family and community. This inter-generational influence was described by Ballantyne et al. (2006) as a potentially powerful means to engage others, already perhaps with established patterns of unsustainable practices, towards sustainability. Therefore, my study has shown that

these different theoretical perspectives can be integrated together to successfully guide research of children's perceptions of environmental sustainability.

#### **7.3.4 Contributions to education.**

The children were able to discuss issues of environmental sustainability, which were influenced by the particular context with which they interacted. My study is the first to provide evidence of the dynamics in children's perceptions of environmental sustainability in school and home contexts. It establishes a strong conceptual argument that if deemed appropriate in curricular content, there is no reason to assume that young children will be unable to cope with an environmental sustainability-based pedagogy. These findings invite a rethink of the articulation and mode of introduction and implementing ECEfS – at least in Malta.

### **7.4 Implications**

The conclusions from my study hold implications for researchers, curricula and policy-makers, and educators wishing to foster ECEfS. The recommendations that follow serve as strategies and guidelines for cultivating settings that most effectively encourage and support the implementation of ECEfS.

#### **7.4.1 Implications for ECEfS research.**

My quest to understand young children's perceptions of environmental sustainability is beneficial for helping researchers to further develop the important and emerging field of ECEfS. My study demonstrates that young children are competent collaborators in the research process and are capable of communicating their views about environment sustainability. The relationship between young children's perceptions of environmental sustainability and engagement in their contexts highlights the need for researchers to attend to cultural variability arising



from participation in social worlds rather than relying on maturational models of human development. Rather than following a prescribed pattern, children's perceptions of environmental sustainability differ according to their socio-cultural (Rogoff, 2003; Vygotsky, 1978) and bio-ecological contexts (Bronfenbrenner & Morris, 2006). Consequently, researchers are encouraged to listen to young children and afford them the opportunity to share their own ideas of environmental sustainability, unrestricted by predetermined response categories or frameworks.

Acknowledgement of the key role of the family and school context in young children's meaning-making requires researchers to work in school-family partnership by engaging with families towards participating in developing ECEfS programmes and services that are family-centred and directly relevant to children's family life. My study has provided a baseline from which future studies into environmental sustainability in ECEfS can be developed.

The unique situations and the findings that became evident in each case cannot be used to make huge generalisations. Each case presented in this thesis is closely connected with a specific context and therefore my finding should not be directly transferred to other contexts. However, the cross-case analysis offered in the previous chapter offered a deeper understanding of children's perceptions of environmental sustainability and offered insight into how we might explore the relationship between contexts and policy-making.

Some of the implications drawn from my research would be relevant to others in ECEfS especially by drawing on Stake's naturalistic generalisations by building up the body of knowledge on the bases of which people can act.

### **7.4.2 Implications for educators.**

My study shows that despite their age, young children are competent and confident in expressing their ideas about environmental sustainability and can join in shared discussions with adults to illustrate their views. The 12 young children in my study clearly demonstrated their abilities as active learners who had agency.

Children construct their knowledge from their surroundings in ways that make sense to them and not necessarily in ways that make sense to adults or in the way adults would like them to. Educators need to recognise that children's voices and experiences are embedded within a certain socio-cultural context. Such reflection may prompt educators to question what is being taught in schools, the way this is influenced by other socio-cultural contexts and global pressures, and their impact on children's educational experiences. Furthermore, the way childhood is constructed by educators has implications for children as well. Children have the right to have their voice heard and to express their views on matters that are of significance to them. This has implications for both how and what children are taught. All of these issues need to be considered within the specific learning context when planning educational programmes if environmental learning is to be meaningful to children. This means that educators need to be aware and understand how children construct their experiences and incorporate new knowledge if we are to ensure that ECEfS becomes a positive experience. Some of the children in my study were clearly upset about certain environmental issues they discussed with me; there is the danger of making things worse by not talking to them about the issues that concern them and just imposing a curriculum without proper debate and consultation with young children. Conversations with the children on environmental topics of

their interest can be a meaningful way to achieve this. It is also important that teachers be open to children's topics of environmental interest and to pick up on them and support their interests.

Educators, however, cannot work alone and are in need of support from parents, funding from the Government, and teacher training from universities. My study has shown that there at least in Malta, there is a need for training that will raise educators' awareness of up-to-date ECEfS information and provide them with the knowledge and skills to address the above issues with young children.

Teachers also need to value the parents' role in their children's learning. My study supports the notion that children's everyday experiences, beliefs and practices within families may lead to significantly different understandings of environmental sustainability, and that these ways of knowing are entwined with school, community and societal factors. Having an awareness and appreciation of children's prior knowledge gained within the family will place teachers in a better position to develop programmes that are culturally relevant and meaningful to very young children.

#### **7.4.3 Implications for curricula and policy-makers.**

My study was not intended to simply culminate in recommendations for the creation of new policies and educational interventions to be imposed on a passive audience, including teachers and children. Rather, it was aimed at serving as a catalyst for a transformative journey in ECEfS, particularly in Malta. To achieve this objective, it was deemed important to secure insights into the children's perceptions of environmental sustainability through qualitative case study research. This was seen as a useful starting point for assisting the design and implementation of multi-

disciplinary ECEfS curricula and policies.

It is worth noting that the possibility that findings from qualitative case study research can be relevant for policy development has been open to criticism over questions of generalisability. The limitations of generalising from case study research have been discussed in the present chapter and in Chapter 4. Here I present propositional generalisations to assist the reader, to make their own naturalistic generalisations<sup>12</sup> (Stake, 2006). It is evident that findings from cases in my thesis are relevant to ECEfS policy-makers and the development of curricula, if the findings within the study context are considered within the framework of naturalistic generalisations.

While children in my study demonstrated that they had distinct views about environmental sustainability, they lived in a world where policies and programmes were often formulated and implemented without consulting them. My study showed that the curriculum, policies and resource material in place at the time of the fieldwork were not based on young children's environmental understandings. My data revealed children's personal priorities and how they constructed meaning of environmental sustainability phenomena within their socio-cultural contexts. Indeed, their environmental concerns did not always reflect the traditional environmentalist ideologies as presented in the curriculum but instead focused on events that directly affect their lives. Therefore, I argue that a "one size fits all" consideration of

---

<sup>12</sup> Stake (2006) noted that the findings of multiple case studies do not preclude the possibility of applying what we have learned from a particular case to other cases – what he calls "naturalistic generalization", which he described as, "conclusions arrived at through personal engagement in life's affairs or by vicarious experience so well constructed that the person feels as if it happened to themselves" (p. 85).

children's perceptions of environmental sustainability undermines their learning potential, as well as the professional status of the teachers.

Postponing the teaching of environmental sustainability concepts that have everyday applicability in young children's lives because they are assumed to be too difficult for children to understand may fail to acknowledge children's capacities to understand and respond to environmental sustainability issues. As indicated in my study this may result in superficial levels of understanding of the issue. I suggest that there may be benefits to be had from teaching young children about environmental sustainability issues in the early years, by discussing issues which interest them and by using age-appropriate pedagogical approaches. Taking teaching about species as an example, a deeper understanding of species requires the ability to not only know species names but also habitats and their roles in maintaining ecological diversity. Once children are attuned to the ecosystem of a particular species, a focus on that species in their everyday surroundings (e.g. backyard and school grounds) can heighten their sensitivity to the intrinsic value of the species in the natural environment.

Finally, some educators in my study seemed to have a poor grasp of, or commitment to, environmental sustainability. Therefore, I argue that given the findings of my study there may be benefits to be had from including more teacher training on ECEfS as part of initial teacher training and continuous professional development training courses.

## **7.5 Recommendations for Future Research**

The stories told and the conclusions formed from the data analysis alluded to a multiplicity of elements involved in the process of learning about environmental

sustainability, beyond the school and family which included (but not limited to) wider familial, cultural, social and political influences. These elements warrant further exploration in future research.

The small number of children involved in my study was appropriate given the research objectives and its in-depth, exploratory nature. However, similar research that draws on more diverse participant characteristics and using different epistemological and ontological perspectives might shed light on other novel insights into this phenomenon. This is particularly important due to the emergence of ECEfS as a new field of research.

Given that my study was conducted in Malta, I adopted a Western perspective of education and ECEfS. Future research could take place in the “Minority World”<sup>13</sup> (see Corsaro, 2009) and offer new understandings of children’s perceptions of environmental sustainability in different parts of the world. A further study with more focus on the diverse contexts both within and across “Minority” and “Majority” Worlds in relation to environmental sustainability is therefore suggested.

Two primary schools run by the State located in Malta were used in my study. Future study could use a combination of centres with different educational philosophies, such as Montessori or Steiner centres, located in different places, such as remote, city, and rural areas, and different types of schools, familial structures,

---

<sup>13</sup> The word “Minority” world defined the “Developed World” and acknowledged “that the ‘majority’ of the world’s population, poverty, land mass and lifestyles are in the ‘Majority World’ which is the ‘Developing World’ or ‘Global South’; this shifts the balance “of our world views that frequently privilege ‘western’ and ‘northern’ populations and issues” (CRFR, 2010; see also Panelli, Punch, & Robson, 2007). Terms such as “majority” and “minority” world are problematic because they seek to homogenise both world regions, however, such discourse “at least invites reflection on the unequal relations between them” (Punch, 2003, p. 278).

and neighbourhoods, to help understand the influence of place, institutional setting, culture, and geography on the children's perceptions of environmental sustainability. This could illustrate unique funds of knowledge/social capital associated with different social, economic and cultural backgrounds. International comparisons of young children's perceptions of environmental sustainability are scant, and cross-cultural studies could provide further insight into how young children engage with environmental sustainability in different countries and cultures. Therefore, conducting research in other places could also reveal different geographical and socio-cultural perspectives associated with environmental sustainability and ECEfS. A study into the promotion of sustainable lifestyles would be timely as we enter the post-DESD era. It could highlight how a community of learners in ECCE could work in unison to realise sustainable lifestyles for communities in the 21<sup>st</sup> century.

The present study indicates that young children influenced and educated their families (even extended families) and communities about environmental sustainability-based on their own learning, decision-making and action-taking. Therefore, in-depth qualitative research is required to further unpick the processes and influences involved in mediating children's understanding of the issue via processes of socialisation with others.

There is a gap in the field in the development of more situated-participatory research approaches for exploring ECEfS through teacher, child and parental engagement. In ECEfS literature (Davis et al., 2008; Prince, 2006; Stuhmcke, 2012) there are examples of environmental programmes that invite children to present ideas of concern about the environment, and then work together with their community to solve these problems. Examples include programmes that resulted from Davis et

al.'s (2008), Prince's (2006) and Stuhmcke's (2012) action research which linked early years' schools with community to take action for their environment. Research by Stuhmcke (2012) has shown that the integration of local issues into early years settings would appear to be essential to empowering young children and creating communities which fulfil the mission of ESD; by not only having knowledge about issues but also the capacity to act. A common element in these types of programmes is the call for action. Rickinson (2001) referred to these participatory programmes as "authentic environmental issues and actions" (p. 287). While an action research approach was attempted in my study, restrictions by local realities did not make this possible. As discussed in Chapter 6, educators in my study revealed that they were cautious to address certain environmental issues, a necessary step in local action research programmes. Therefore, I suggest that future study could investigate how participatory action research supports children's, educators' and parents' perceptions of environmental sustainability, in diverse socio-economic areas and communities. As participants would be leading the research they would be able to choose their own research questions that would be more socially and culturally relevant to the community of the schools served. Furthermore, researchers should consider employing some of the new innovative participatory research methodologies, such as photography and videography, which situate young children as co-researchers. Such methodologies have the potential to produce an interesting new body of knowledge.

To develop a full picture of children's perceptions of environmental sustainability and how they change over time, additional studies are needed that include direct long-term observation of young children's environmental interactions and negotiations; it could shed more insight to their experiences and perceptions.



Conducting longitudinal studies of young children's perceptions of environmental sustainability could allow researchers to map their development over time from early childhood into middle childhood and adolescence. Such studies could be conducted on with children who have experienced ECEfS, as well as with those who did not, in order to find whether early experiences continue to influence them. Furthermore, longitudinal studies into the impact of ECEfS on later life-stages are required, to explore long-term outcomes of starting early with ESD. Such studies are likely to offer additional depth and richness to our understanding of influences in relation to environmental sustainability starting from the ECCE sector to adolescence.

Teachers in my study called for more teacher training in ESD and ECEfS. There is abundant room for further progress in determining professional development and initial teacher training in ECEfS, which would be effectively developed and communicated. Finally, my study points to the need for education to value children's knowledge, and consider their thoughts and the role they could play in dealing with global environmental issues now and in the future.

## **7.6 A Final Note**

Issues about environmental sustainability are perhaps not usually associated with very young children. Indeed, it is understandable that it may be seen as entirely irrelevant to them. Prior to commencing my research, I was uncertain about how much interest the participating children would have in the subject, and was concerned that they might struggle to discuss complex ideas related to this area. However, the majority of children were keen and enthusiastic about the research activity, regardless of their awareness of environmental sustainability, and produced rich, varied and thought provoking ideas.

Before I conclude, I would like to draw the reader's attention to an event that happened after the data collection. This extract was taken from my researcher's journal.

2<sup>nd</sup> May, 2013

It was 5 o'clock in the afternoon, when the telephone rang. It was Alison, Amie's mum, who said that Amie wanted to talk to me. Alison also remarked that this was unusual for her daughter to want to talk to someone whom she had met for a couple of weeks. I was delighted and apprehensive about this because I did not know what to expect. Then Alison handed to phone over to Amie.

Amie: Hello Jane!

Me: Hello Amie! How are you doing?

Amie: I am fine, thanks, but I wanted to tell you something. May I?

Me: Sure!

Amie: Jane, I enjoyed the sessions with you and I wish you could come to our school again. (Pause). And do you think you could help me?

Me: OK, how may I help you?

Amie: Could you teach people care more for the Earth, please?

Please, do Jane!

This conversation gave me hope for the future because children are the future and they do care!

Working with young children was a fascinating and rewarding experience for me, not only for the information they have revealed, but also in their potential to

inform research. My thesis invites reflection of whether we should be moving towards a different educational approach in ESD, which promotes young children as actively involved with the environment. It provides evidence that young children can be supported to reveal their ideas about the environment. It has opened the door to further and exciting research in the future, and to explore whether a way can be paved for a more negotiated curriculum approach, with adults and children working in partnership. On the evidence from my research, children can indeed help shape their own lives and world.



### References

- Abela, A. M. (1993). *Surveys of values in Malta. Politika*. Pieta, Malta: Partit Nazzjonalista.
- Ajezn, I. (1988). *Attitudes, personality and behaviour*. Milton Keynes: Open University Press.
- Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- Alerby, E. (2000). A way of visualising children's and young people's thoughts about the environment: A study of drawings. *Environmental Education Research*, 6(3), 205-222.
- Ang, F., & Van Passel, S. (2012). Beyond the environmentalist's paradox and the debate on weak versus strong sustainability. *BioScience*, 62(3), 251-259. doi: 10.1525/bio.2012.62.3.6
- Anning, A., & Ring, K. (2004). *Making sense of children's drawings*. Maidenhead: Open University Press.
- Arcury, T. A., Johnson, T. P., & Scollay, S. J. (1986). Ecological worldview and environmental knowledge: The "New Environmental Paradigm." *Journal of Environmental Education*, 17(4), 35-40.
- Aries, P. (1962). *Centuries of childhood: A social history of family life*. New York: Vintage.
- Aubrey, C., & Dahl, S. (2005). That child needs a good listening to! Reviewing effective interview strategies. *Journal of Education*, 35, 99-119.
- Aubrey, C., David, T., Godfrey, R., & Thompson, L. (2000). *Early childhood educational research: Debates and issues in methodology and ethics*. London: Routledge Falmer Press.
- Baker, J., & Smith, F. (2012). Photography, school spaces and school lives. Using visual methods in schools to map the geographies of children and youth. In S. Rizvi (Ed.), *Multidisciplinary approaches to educational research. Case studies from Europe and the Developing World* (pp.15-35). New York: Routledge.
- Ballantyne, R., Connell, S., & Fien, J. (1998a). Factors contributing to intergenerational communication regarding environmental programs: Preliminary research findings. *Australian Journal of Environmental Education*, 14, 1-10.

- Ballantyne, R., Connell, S., & Fien, J. (1998b). Students as catalysts for environmental change: A framework for researching intergenerational influence through environmental education. *Environmental Education Research*, 4, 285–298.
- Ballantyne, R., Connell, S., & Fien, J. (2006). Students as catalysts of environmental change: A framework for researching intergenerational influence through environmental education. *Environmental Education Research*, 12(3-4), 413–427.
- Ballantyne, R., Fien, J., & Packer, J. (2000). Program effectiveness in facilitating intergenerational influence in environmental education: Lessons from the field. *Journal of Environmental Education*, 32, 8-15.
- Ballantyne, R., Fien, J., & Packer, J. (2001a). Intergenerational influence in environmental education: A quantitative analysis. *Australian Journal of Environmental Education*, 17, 1-7.
- Ballantyne, R., Fien, J., & Packer, J. (2001b). Program effectiveness in facilitating intergenerational influence in environmental education: Lessons from the field. *Journal of Environmental Education*, 32(4), 8-15.
- Ballantyne, R., Fien, J., & Packer, J. (2001c). School environmental education programme impacts upon student and family learning: A case study analysis. *Environmental Education Research*, 7, 23–37.
- Balteanu, D., & Dogaru, D. (2011). Geographical perspectives on human-environment relationships and anthropic pressure indicators. *Romanian Journal of Geography*, 55(2), 69-80.
- Barratt Hacking, E., Cutter-Mackenzie, A., & Barratt, R. (2013). Children as active researchers. The potential of environmental education research involving children. In R. B. Stevenson, M. Brody, J. Dillon, & A. E. J. Wals, (Eds.), *International handbook of research on environmental education* (pp. 438-458). New York: Routledge.
- Barraza, L. (1999). Children's drawings about the environment. *Environmental Education Research*, 5 (1), 49-66.
- Barraza, L. (2001). Perceptions of social and environmental problems of English and Mexican school children. *Canadian Journal of Environmental Education*, 6 (Spring 2001), 139-157.
- Barraza, L., & Robottom, I. (2008). Gaining representations of children's and adults' perceptions of sustainability issues. *International Journal of Environmental & Science Education*, 3(4), 179-191.

- Barry, J. (2007). *Environment and social theory*. (2<sup>nd</sup> ed.). Great Britain: Routledge.
- Berk, L. E., & Winsler, A. (1995). *Scaffolding children's learning: Vygotsky and early childhood education*. Washington, DC: National Association for the Education of Young Children.
- Bezzina, C. (2002). Rethinking teachers' professional development in Malta: Agenda for the twenty-first century. *Journal of In-Service Education*, 28(1), 57-78.
- Bezzina, C., & Pace, P. (2004). Promoting School Development through Environmental Education. *Trends: Monograph Series in Education, Issue 1*. University of Malta: Faculty of Education.
- Blaikie, W. H. (1992). The Nature and origins of Ecological World Views: An Australian Study. *Social Science Quarterly*, 73(1), 144-165.
- Blake, J. (1999). Overcoming the "value-action gap" in environmental policy: tensions between national policy and local experience. *Local Environment*, 4(3), 257-278.
- Blewitt, J. (2015). *Understanding Sustainable Development*. (2<sup>nd</sup> ed.). London & New York: Routledge Taylor Francis Group.
- Boehm, A. E., & Weinberg, R. A. (1987). *The classroom observer: Developing observation skills in early childhood settings* (2<sup>nd</sup> ed.). New York: Teachers College Press.
- Boeve-de Pauw, J., & Van Petegem, P. (2011). The effect of Flemish eco-schools on student environmental knowledge, attitudes and affect. *International Journal of Science Education*, 33, 1513-1538. doi:10.1080/09500693.2010.540725.
- Bogner, F. X., & Wiseman, M. (1999). Toward measuring adolescent environmental perception. *European Psychologist*, 4, 139-151. doi:10.1027//1016-9040.4.3.139.
- Bogner, F. X., & Wiseman, M. (2002). Environmental perception: Factor profiles of extreme groups. *European Psychologist*, 7, 225-237. doi:10.1027//1016-9040.7.3.225.
- Bogner, F. X., & Wiseman, M. (2006). Adolescents' attitudes towards nature and environment: Quantifying the 2-MEV model. *The Environmentalist*, 26, 247-254. doi:10.1007/s10669-006-8660-9.
- Boissevain, J. (1990). Why do the Maltese ask so few questions? *Education* 3(4), 16-18.

- Boissenvain, J. (2006). Changing attitudes to Maltese landscapes. *Etnofoor*, 19(2), Landscaping (2006), 87-111. Retrieved from <http://www.jstor.org.ezproxy.is.ed.ac.uk/stable/pdf/25758122.pdf?acceptTC=true>
- Boissevain, J. (2013). *Factions, friends and feasts. Anthropological perspectives on the Mediterranean*. New York: Berghahn Books.
- Bonnet, M., & Williams, J. (1998). Environmental education and children's attitudes towards nature and the environment. *Cambridge Journal of Education*, 28(2), 159-174.
- Bowers, C. A. (1995). Ecological challenges in the third millennium: Some reflections on Paquette's priorities. *Curriculum Inquiry*, 25 (1), 57-69.
- Boyd, B. (2013). Postcolonial times: Lock the gate or pull down the fences? Monograph issue presented at the 2013 Australian studies centre tricontinental lecture in postcolonial studies. University of Barcelona, Catalonia. Monograph issues. Coolabah, No.12, 2013, ISSN 1988-5946, Observatori: Centre d'Estudis Australians, Australian Studies Centre, Universitat de Barcelona.
- Bredenkamp, S. (Ed.). (1987). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. Washington, DC: NAEYC.
- Bredenkamp, S., & Copple, C. (Eds.). (1997). *Developmentally appropriate practice in early childhood programs: a revised edition*. Washington: NAEYC.
- Briguglio, L., & Pace, J. P. (2004). *Education for sustainable development in Malta*. This paper is a revised version of a case study prepared for the expert meeting on Capacity development for sustainable development in SIDS: Building partnerships for sustainable development through education, public awareness and training University of South Pacific, December 3 to 8, 2003. Retrieved from [http://www.um.edu.mt/\\_data/assets/pdf\\_file/0006/63861/education\\_esd\\_lbri\\_guglio\\_ppace.pdf](http://www.um.edu.mt/_data/assets/pdf_file/0006/63861/education_esd_lbri_guglio_ppace.pdf)
- Brock, C., & Crossley, M. (2013). Revisiting scale, comparative research and education in small states, *Comparative Education*, 49(3), 388-403.
- Bronfenbrenner, U. (1979). *The ecology of human development. Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (Ed.). (2005). *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks, CA: Sage.



- Bronfenbrenner, U., & Morris, P. A. (2006). The Bioecological Model of Human Development. In R. M. Lerner, & W. Damon, (Eds.), *Handbook of child psychology. Theoretical models of human development* (6<sup>th</sup> ed., pp. 793-828). Hoboken, New Jersey: John Wiley & Sons, Inc.
- Brookes, A. (2002). Lost in the Australian bush: Outdoor education as curriculum. *Journal of Curriculum Studies*, 34(4), 405-425.
- Brothers, C. C., Fortner, R., & Mayer, V. J. (1991). The impact of television news on public environmental knowledge. *International Journal of Environmental Education*, 22(4), 22-29.
- Brown, B. (2001). *Combating discrimination: Persona dolls in action*. Stoke on Trent, UK: Trentham Books.
- Bus, A., & van IJzendoorn, M. (1988). Mother-child interactions, attachment and emergent literacy: A cross-sectional study. *Child Development*, 58, 1262-1272.
- Buttimer, A., & Seamon, D. (Eds.). (1980). *The human experience of space and place*. London: Croom Helm.
- Cannella, G. (2005). Reconceptualising the field (of early care and education). If 'western' child development is the problem, then what do we do? In N. Yelland (Ed.), *Critical issues in early childhood education* (pp. 17-39). Maidenhead: Oxford University Press.
- Cannella, G. (Ed.). (1997). *Deconstructing early childhood education: Social justice and revolution*. New York: Peter Lang.
- Cannella, G. S. (1999). The scientific discourse of education: predetermining the lives of others-Foucault, education, and children. *Contemporary Issues in Early Childhood*, 1(1), 36-44.
- Camilleri, A. (1995). *Bilingualism in education: The Maltese experience*. Heidelberg: Julius Groos Verlag.
- Camilleri, J. J. (1978). The Keenan report: A definition. *Hyphen*, 4, 1-8.
- Camilleri, J. J. (2001). Paolo Pullicino's educational legacy. In R. G. Sultana (Ed.) (pp. 101-122). Malta: PEG.
- Carroll, C. (2002). "What is the environment anyway"? *A study of children's perceptions of the notion of environment* (Unpublished professional Doctorate thesis). University of Canberra.
- Carson, R. (1956, published in 1998). *The sense of wonder*. New York: Harper and Row.

- Cassar, G. (2009). Education and Schooling: From early childhood to old age. In J. Cutajar & G. Cassar (Eds.) *Social transitions in Maltese society*. Luqa, Malta: Agenda Publishers.
- Cassar, G. (2014). Act XXII of 1924 and education in Malta 90 years ago. *mill-PARLAMENT – Settembru 2014*, 14-17.
- Center on the Developing Child at Harvard University. (2010). *The foundations of lifelong health are build in early childhood*. Retrieved from <http://www.developingchild.harvard.edu>
- Charmaz, K. (2006). *Constructing grounded theory. A practical guide through qualitative analysis*. London: SAGE Publications Ltd.
- Chaplin, G., & Wyton, P. (2014). Student engagement with sustainability: Understanding the value–action gap. *International Journal of Sustainability in Higher Education*, 15(4), 404-417.
- Chawla, L. (2006). *Learning to love the natural world enough to protect it*. Barn, 2, 5778.
- Chawla, L. (2008). Participation and the ecology of environmental awareness. In A. Reid, B. B. Jensen, & J. Nikel (Eds.), *Participation and learning: perspectives on education and the environment, health and sustainability* (pp. 98-110). New York: Springer-Verlag.
- Christensen, P. (2004). Children's participation in ethnographic research: Issues of power and representation. *Children and Society*, 18, 165-176.
- Christensen, P., & James, A. (2008). Researching Children and Childhood Cultures of Communication. In: P. Christensen, & A. James (Eds.), *Research with Children: Perspectives and Practices* (2<sup>nd</sup> ed., pp. 1-9). Oxon: Routledge.
- Christensen, P., & James, A. (Eds.). (2000). *Research with children: Perspectives and practices*. London: Falmer Press.
- Christensen, P., & Prout, A. (2005). Anthropological and sociological perspectives on the study of children. In: S. Greene, & D. Hogan (Eds.), *Researching children's experience. Approaches and methods* (pp. 42-60). London: SAGE Publications Ltd.
- CIA – Central Intelligence Agency Factbook. (2010). Retrieved from <http://www.cia.gov/library/publications/the-world-factbook/geos/mt.html>
- Cincera, J., Kroufek, R., Simonova, P., Broukalova, L., Broukal, V., & Skalík, J. (2015). Eco-School in kindergartens: the effects, interpretation, and implementation of a pilot program, *Environmental Education Research*, 1-18.

- Clark, A., & Moss, P. (2011). *Listening to young children: The mosaic approach* (2<sup>nd</sup> ed.). London: National Children's Bureau Enterprises Ltd.
- Claxton, G. (2008). *What is the point of school? Rediscovering the heart of education*. Oxford: OneWorld Publications.
- Clayton, S. (2012). (Ed.) *The Oxford handbook of environmental and conservation psychology*. Oxford: Oxford University Press.
- Cole, M., & Wertsch, J. V. (1996). Beyond the individual-social antimony in discussions of Piaget and Vygotsky. *Human Development*, 39, 250-256.
- Copple, C., & Bredekamp, S. (Eds.). (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3<sup>rd</sup> ed.). Washington, DC: NAEYC.
- Corsaro, W. (1985). *Friendship and peer culture in the early years*. Norwood, N.J.: Ablex.
- Corsaro, W. (2005). *The sociology of childhood* (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage.
- Corsaro, W. A. (1992). Interpretative reproduction in children's peer cultures. *Social Psychology Quarterly*, 55, 160-177.
- Corsaro, W. A. (2003). *We're friends right? Inside kids' culture*. Washington: Joseph Henry Press.
- Corsaro, W. A. (2009). Peer Culture. In J. Qvortrup, W. A. Corsaro, & M. S. Honning, M. S. (Eds.) *The Palgrave Handbook of Childhood Studies*. Basingstoke: Palgrave MacMillan.
- Creswell, J. (2005). *Educational research. Planning, conducting, and evaluating quantitative and qualitative research* (2<sup>nd</sup> ed.). New Jersey: Pearson.
- Creswell, J. W. (2007). *Qualitative inquiry & research design. Choosing among five approaches* (2<sup>nd</sup> ed.). Thousand Oaks: Sage Publications Inc.
- Creswell, J. W. (2012). *Educational research. Planning, conducting and evaluating quantitative and qualitative research* (4<sup>th</sup> ed.). Boston, MA: Pearson Education, Inc.
- Creswell, J. W. (2013). *Qualitative inquiry & research design. Choosing among five approaches* (3<sup>rd</sup> ed.). Los Angeles: SAGE.

- Cronon, W. (1996). The trouble with wilderness, or getting back to the wrong nature. In: W. Cronon (Ed.) *Uncommon ground: rethinking the human place in nature* (pp. 69–90). New York, W.W. Norton.
- Crotty, M. (1998). *The foundations of social research*. London: Sage Publications.
- Cutter-Mackenzie, A. (2009). *Children as researchers: Exploring the possibilities and challenges in environmental education*. Paper presented at the 5<sup>th</sup> World Environmental Education Congress, Montreal, Canada, 10-14 May 2009.
- Cutter-Mackenzie, A., & Edwards, S. (2013). The next 20 years: imagining and re-imagining sustainability, environment and education in early childhood education. In S. Elliott, S. Edwards, J. Davis, & A. Cutter-Mackenzie (Eds.), *Early childhood Australia's best of sustainability. Research, practice and theory* (pp. 61-66). Australian Capital Territory: Early Childhood Australia Inc.
- Dahlberg, G., Moss, P., & Pence, A. (2007). *Beyond quality in early childhood education and care: Languages of evaluation* (2<sup>nd</sup> ed.). London: Routledge.
- Danby, S., & Farrell, A. (2004). Accounting for young children's competence in educational research: New perspectives in research ethics. *Australian Educational Researcher*, 31(3), 35-49.
- Davies, G. R. (2013). Appraising weak and strong sustainability: Searching for a middle ground. *Consilience: The Journal of Sustainable Development*, 10(1), 111-124.
- Davis, J. (2009). Revealing the research 'hole' of early childhood education for sustainability: a preliminary survey of the literature. *Environmental Education Research*, 15(2), 227-241.
- Davis, J. (Ed.). (2010). *Young children and the environment. Early education for sustainability*. Sydney: Cambridge University Press.
- Davis, J. M. (2008). What might education for sustainability look like in early childhood? A case for participatory, whole-of-settings approaches. In I. Pramling Samuelsson, & Y. Kaga (Eds.), *The contribution of early childhood education to a sustainable society* (pp. 18-24). Paris: UNESCO.
- Davis, J. M. (2011). Early childhood education. In J. Newman (Ed.), *Green education* (pp. 115-117). Los Angeles: SAGE Reference.
- Davis, J. M. (2013). International trends in early childhood education for sustainability. In I. Michiko (Ed.), *Perspectives on early childhood education for sustainability*, Association for children's environment, Japan: Doshisha Women's College of Liberal Arts.

- Davis, J., & Elliott, S. (Eds.). (2014). *Research in early childhood education for sustainability. International perspectives and provocations*. Oxon: Routledge.
- Davis, J., Miller, M., Boyd, W., & Gibson, M. (2008). *The impact and potential of water education in early childhood care and education settings: A report of the Rous water early childhood Water aware centre program*. Brisbane: Queensland University of Technology.
- Davis, J., Rowntree, N., Gibson, M., Pratt, R., & Eglington, A. (2005). Creating a culture of sustainability: From project to integrated education for sustainability at campus kindergarten. In W. L. Filho (Ed.), *Handbook of sustainability research* (pp. 563-594). Germany: Peter Lang Publishing.
- De Groot, J. I. M., & Steg, L. (2008). Value orientations to explain beliefs related to environmental significant behaviour: How to measure egoistic, altruistic, and biospheric value orientations. *Environment and Behaviour*, 40(3), 330-354.
- de Vries, B. J. M., & Petersen, A. C. (2009). Conceptualizing sustainable development. An assessment methodology connecting values, knowledge, worldviews and scenarios. *Ecological Economies*, 68(4), 1006-1019.
- DeLoughrey, E. (2015). Ordinary Futures. Interspecies worldings in the anthropocene. In E. DeLoughrey, J. Didur, & A. Carrigan (Eds.) *Global ecologies and the environmental humanities. Postcolonial approaches*. New York and London: Routledge Taylor & Francis Group.
- DeLoughrey, E., Didur, J., & Carrigan, A. (2015) (Eds.) *Global ecologies and the environmental humanities. Postcolonial approaches*. New York and London: Routledge Taylor & Francis Group.
- Denzin, N. K., & Lincoln, Y. S. (2005). Introduction: The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3<sup>rd</sup> ed., pp. 1-32). Thousand Oaks, CA: Sage.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The SAGE handbook of qualitative research (Sage handbooks)*. Los Angeles: SAGE.
- Denzin, N., & Lincoln, Y. (Eds.). (1994). *Handbook of qualitative research* (1<sup>st</sup> ed.). Thousand Oaks, CA: Sage.
- Director General. (2009). Director General Circular dated 26th May 2009 Ref DES/DQSE/01/2009: Memorandum of Understanding between the Government of Malta and the Malta Union of teachers.

- Dockett, S., Einarsdottir, J., & Perry, B. (2009). Researching with children: Ethical tensions. *Journal of Early Childhood Research*, 7(3), 283-298. Retrieved from <http://ecr.sagepub.com/cgi/content/abstract/7/3/283>
- Dockett, S., Einarsdottir, J., & Perry, B. (2011). Balancing methodologies and methods in researching with young children. In D. Harcourt, B. Perry, & T. Waller (Eds.), *Researching young children's perspectives. Debating the ethics and dilemmas of educational research with children*. Oxon: Routledge.
- Dockett, S., & Perry, B. (1996). Young children's construction of knowledge. *Australian Journal of Early Childhood*, 21(4), 6-11.
- Donaldson, M. (1978). *Children's minds*. Glasgow: Fontana/Collins.
- Donaldson, M., Grieve, R., & Pratt, C. (1983). *Early childhood development and education: Readings in psychology*. Oxford: Basil Blackwell.
- Drever, E. (1995). *Using semi-structured interviews in small-scale research. A teacher's guide*. The Scottish Council for Research in Education: SCRE Publication 129.
- Dubois, A. (2004). *Quels mots quels outils pour une éducation au développement durable?* Association Science technologie Société: Enquête qualitative exploratoire.
- Duhn, I. (2012). Making 'place' for ecological sustainability in early childhood education. *Environmental Education Research*, 18(1), 19-29.
- Dunlap, R. E., & Van Liere, K. (1978). The new environmental paradigm: A proposed measuring instrument and preliminary results. *Journal of Environmental Education*, 9, 10-19.
- Dunlap, R., & Van Liere, K. D. (1984). Commitment to the dominant social paradigm and concern for environmental quality. *Social Science Quarterly*, 65(4), 1013-1028.
- Dunlap, R., van Liere, K., Mertig, A., & Jones, R. (2000). Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues*, 56, 425-442.
- Dunne, J. (2006). Childhood and citizenship: A conversation across modernity. *European Early Childhood Education Research Journal*, 14(1), 5-19.
- Duvall, J., & Zint, M. (2007). A review of research on the effectiveness of environmental education in promoting intergenerational learning. *The Journal of Environmental Education*, 38(4), 14-24.

- Earth Charter International. (2009). *A guide for using the Earth Charter in education, Earth Charter Education Commission*. Retrieved from [www.earthcharter.org](http://www.earthcharter.org)
- Edwards, S., & Cutter-Mackenzie, A. (2011). Environmentalising early childhood education curriculum through pedagogies of play. *Australasian Journal of Early Childhood*, 36(1), 51–59.
- Elliott, S., & Davis, J. (2009). Exploring the resistance: An Australian perspective on educating for sustainability in early childhood. *International Journal of Early Childhood*, 41(2), 65-76.
- Elliott, S., & Davis, J. (2013). ECA's best of sustainability edition. Investigating early childhood education for sustainability: Insights from history and literature. In S. Elliott, S., Edwards, J. Davis, & A. Cutter-Mackenzie (Eds.), *Early childhood Australia's best of sustainability. Research, practice and theory* (pp. 4-10). Australian Capital Territory: Early Childhood Australia Inc.
- Ellis, S., & Rogoff, B. (1982). The strategies and efficacy of child versus adult teachers. *Child Development*, 53, 730-735.
- Engdahl, I., & Rabušicová, M. (2010). Children's voices about the state of the earth and sustainable development. A report for the OMEP world assembly and world congress on the OMEP world project on education for sustainable development 2009-2010. World Organisation for Early Childhood Education. Retrieved from [http://www.omep.org.se/digitalAssets/1314/1314390\\_esd-congress-report-child-interviews.pdf](http://www.omep.org.se/digitalAssets/1314/1314390_esd-congress-report-child-interviews.pdf)
- European Map of Intergenerational Learning (n.d.). *Concept paper: Intergenerational learning and lifelong learning*. Retrieved from <http://www.emil-network.eu/res/documents/resource/Intergenerational%20Learning%20and%20Lifelong%20Learning.pdf>
- EURYDICE, (2011a). EURYPEDIA: *European encyclopedia on national education systems*. European Commission. Retrieved from <https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/>
- EURYDICE, (2011b). *National summary sheets on education systems in Europe and ongoing reforms*. 2011 edition. Malta. Brussels: European Commission.
- Farnum, J., Hall, T., & Kruger, L. E. (2005). *Sense of place in natural resources recreation and tourism: An evaluation of and assessment of research findings*. Portland, OR: USDA, Forest Service, Pacific Northwest Research Station.

- Farrugia, C. J. (1991). Malta: Educational development in a small island state. *Prospects*, 21(4), 584-594.
- FEE. (n.d.) *What is eco-schools?* Retrieved from <http://www.fee-international.org/en/menu/programmes/eco-schools>
- Ferro, E., White, R. Cox, E. Bebbington, J., & Wilson, S. (2011). Craft and sustainable development: reflections on Scottish craft and pathways to sustainability. *Craft + Design Enquiry*, 3, 1-26.
- Fien, J. (1993). *Education for the Environment: Critical curriculum theorizing and environmental education*. Geelong: Deakin University Press.
- Fien, J. (1997). Stand up, stand up and be counted: Undermining myths of environmental education. *Australian Journal of Environmental Education*, 13, 21-26.
- Fien, J. (2000). Education for the environment: A critique - A response. *Environmental Education Research*, 6(2), 179-192.
- Fien, J. (2001). Education for sustainability: Reorienting Australian schools for a sustainable future. In N. Blake, M. Krockenberger, H. Saddler, L. Sandercock, R. Slatyer, & Yencken, D. (Eds.), *Tela (Issue 8): Melbourne, Vicotria*. A report prepared for The Australian Conservation Foundation, The Australian Association for Environmental Education, and The Trust for Young Australians. Retrieved from [http://www.acfonline.org.au/sites/default/files/resources/tela08\\_education\\_%20for\\_sustainability.pdf](http://www.acfonline.org.au/sites/default/files/resources/tela08_education_%20for_sustainability.pdf)
- Fien, J. (2004). Education for sustainability. In R. Gilbert (Ed.), *Studying society and environment. A guide for Teachers* (3<sup>rd</sup> ed., pp. 184-200). South Melbourne: Thomson.
- Fien, J., & Gough, A. (1996). Environmental education. In R. Gilbert (Ed.), *Studying society and the environment: A handbook for teachers* (pp. 200–216). Melbourne: Macmillan Education Australia.
- Fien, J., & Tilbury, D. (2002). The global challenge of sustainability. In D. Tilbury, R. Stevenson, J. Fien, & D. Schreuder (Eds.), *Education and sustainability: Responding to the global challenge* (pp. 1-12). Switzerland: IUCN. Retrieved from <http://www.mma.gov.br/port/sdi/ea/deds/arqs/educandsust.pdf>
- Finger, M. (1993). Politics of the UNCED process. In W. Sachs (Ed.), *Global ecology: A new arena of political conflict* (pp. 36-48). London: Zed Books.
- Finlay, L., & Gough, B. (Eds.). (2003). *Reflexivity: a practical guide for researchers in health and social sciences*. Oxford, UK: Blackwell.



- Fietkau, H. J., & Kessel, H. (1981). *Umweltlernen [Environmental learning]*. Koenigstein: Hain.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fishbein, M., & Yzer, M. C. (2003). Using theory to design effective health behaviour interventions. *Communication Theory*, 13(2), 164-183.
- Foster, P. (1996). *Observing schools: A methodological guide*. London: Paul Chapman Publishing Ltd.
- Fox, R. (2001). Constructivism examined. *Oxford Review of Education*, 27(1), 23-35.
- Frisk, E., & Larson, K. L. (2011). Competencies and practices for transformative action. *Journal of Sustainability Education*, 2, 117-128.
- Fritze, J. G., Blaski, G. A., Burke, S., & Wiseman, J. (2008). Hope, despair and transformation: Climate change and the promotion of mental health and wellbeing. *International Journal of Mental Health Systems*, 2(13), 1-10.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8<sup>th</sup> ed.). Boston: Pearson/Allyn & Bacon.
- Gallacher, L., & Gallagher, M. (2008). Methodological immaturity in childhood research? *Childhood*, 15(4), 499-516.
- Gallagher, M. (2009). Ethics. In E. K. M. Tisdall, J. Davis, & M. Gallagher (Eds.), *Researching with children and young people. Research design, methods and analysis* (pp. 11-28). London: SAGE Publications Ltd.
- Gifford, R. (1997). *Environmental psychology: Principles and practice*. Boston: Allyn & Bacon.
- Golledge, R. G. (2006). Philosophical bases of behavioural research in geography. In S. Aitken, & G. Valentine (Eds.). *Approaches to Human Geography* (pp. 75-85). London: Sage.
- Gonzalez, A. B. (2013). *Education for sustainability in early childhood education: Children's discourses* (Unpublished M.Ed. thesis). Oslo and Akershus University College of Applied Sciences, Dublin Institute of Technology and University of Malta.
- Gonzalez-Gaudiano, E. (2006). Environmental education: a field in tension or transition. *Environmental Education Research*, 12 (3), 291-300.

- Goodland, R. (1995). The concept of environmental sustainability. *Annual Review of Ecology and Systematics*, 26, 1-24.
- Gough, A. (1997). *Education and the environment: Policy, trends and the problems of marginalisation*. Melbourne: The Australian Council for Educational Research Ltd.
- Gough, A. (2013). The emergence of environmental education research. A “History” of the field. In R. B. Stevenson, M. Brody, J. Dillon, & A. E. J. Wals (Eds.), *International handbook of research on environmental education* (pp. 13-22). New York: Routledge.
- Gray, C., & Macblain, S. (2012). *Learning theories in childhood*. London: SAGE Publications Ltd.
- Greene, S., & Hill, M. (2011). Researching children’s experience: Methods and methodological issues. In S. Greene, & D. Hogan (Eds.), *Researching children’s experience: Methods and approaches* (pp. 1-21). London: SAGE Publications Ltd.
- Grob, A. (1991). *Meinung, Verhalten, Umwelt*. Bern: Peter Lang Verlag.
- Grob, A. (1995). A structural model of environmental attitudes and behaviour. *Journal of Environmental Psychology*, 15, 209-220.
- Grove, R. H. (1995). Green imperialism: Colonial expansion, tropical island edens, and the origins of environmentalism, 1600-1860. Cambridge and New York: Cambridge University Press.
- Gruenewald, D. (2004). A Foucauldian analysis of environmental education: Toward the socioecological challenge of the Earth Charter. *Curriculum Inquiry*, 34(1), 71-107.
- Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences on attitude-behaviour relationships: A natural experiment with curbside recycling. *Environment and Behaviour*, 27(5), 699-718.
- Hackmann, H., Moser, S. C., & Clair, A. L. S. (2014). The social heart of global environmental change. *Nature Climate Change*, 4(8), 653-655.
- Harden, C. P. (2012). Framing and reframing questions of human–environment interactions. *Annals of the Association of American Geographers*, 102(4), 737-747.
- Hart, C. S., Biggeri, M., & Babic, B. (2015). *Agency and participation in childhood and youth. International applications and the capability approach in schools and beyond*. London & New York: Bloomsbury Academic.

- Heath, S., Charles, V., Crow, G., & Wiles, R. (2007). Informed consent, gatekeepers and go-betweens: negotiating consent in child- and youth-oriented institutions. *British Educational Research Journal*, 33(3), 403-417.
- Hedges, H. (2007). *Funds of knowledge in early childhood communities of inquiry* (Unpublished Ph.D. thesis). Massey University, Palmerston North.
- Hedges, H., & Cullen, J. (2003). The tooth fairy comes, or is it just your mum and dad?: A child's construction of knowledge. *Australian Journal of Early Childhood*, 28(3), 19-24.
- Heimlick, J. E., & Ardoin, N. M. (2008). Understanding behaviour to understand behaviour change: A literature review. *Environmental Education Research*, 14(3), 215-237.
- Henderson, K., & Tilbury, D. (2004). *Whole-school approaches to sustainability: An international review of whole-school sustainability programs*. Report prepared by the Australian Research Institute in Education for Sustainability (ARIES) for the Department of the Environment and Heritage, Australian Government. Retrieved from [http://www.aries.mq.edu.au/pdf/international\\_review.pdf](http://www.aries.mq.edu.au/pdf/international_review.pdf)
- Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis, *The Journal of Environmental Education*, 18(2), 1-8.
- Hoffman, A. J., & Bazerman, M. H. (2007). Changing practice on sustainability: Understanding and overcoming the organisational and psychological barriers to action. In S. Sharma, M. Starik, & B. Husted (Eds.), *Organizations and the sustainability mosaic: Crafting long-term ecological and societal solutions* (pp. 84-105). Northampton, MA: Edward Elgar.
- Holland, A. (1994). Natural capital. In R. Attfield, & A. Belsey (Eds.), *Philosophy and the natural environment* (pp. 169-182). Cambridge: Cambridge University Press.
- Horlings, L. G. (2015). The inner dimension of sustainability: personal and cultural values. *Current Opinion in Environmental Sustainability* 2015, 14, 163-169.
- Huckle, J. (1991). Education for sustainability: assessing pathways to the future. *Australian Journal of Environmental Education*, 7, 43-62.
- Huckle, J. (1993). *Our consumer society (What we consume – Unit 3)*. Richmond: World Wide Fund for Nature/Richmond Publishing.
- Huckle, J. (1996). Realising sustainability in changing times. In J. Huckle, & S. Sterling (Eds.), *Education for Sustainability* (pp. 3-17). London: Earthscan Publications.

- Huckle, J. (2005). *Education for sustainable development in Europe: some current challenges*. Power point presentation to a conference on environmental education organised by the Hellenic Association for the Protection of the Environment and Cultural Heritage - University of Piraeus, April 1<sup>st</sup> 2005.
- Huggan, G., & Tiffin, H. (2015). *Postcolonial ecocriticism: Literature, animals, environment*. (2<sup>nd</sup> ed.) London & New York: Routledge Taylor & Francis Group.
- Hultqvist, K., & Dahlberg, G. (Eds.). (2001). *Governing the child in the new millennium*. London: RoutledgeFalmer.
- IPCC (2014). *Climate change 2014: impacts, adaptation, and vulnerability*. Summary for policymakers. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C. B., V. R. Barros, D. J. Dokken, K. J. Mach, M. D. Mastrandrea, T. E. Bilir, M. Chatterjee, K. L. Ebi, Y. O. Estrada, R. C. Genova, B. Girma, E. S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea, & L. L. White (Eds.)]. Cambridge and New York: University. Retrieved from [http://ipcc-wg2.gov/AR5/images/uploads/WG2AR5\\_SPM\\_FINAL.pdf](http://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf)
- Istead, L., & Shapiro, B. (2014). Recognizing the child as knowledgeable other: Intergenerational learning research to consider child-to-adult influence on parent and family eco-knowledge. *Journal of Research in Childhood Education*, 28, 115–127.
- IUCN. (1980). *World conservation strategy: living resource conservation for sustainable development*. Switzerland: International Union for the Conservation of Nature and Natural Resources (IUCN).
- Jabareen, Y. (2008). A new conceptual framework for sustainable development. *Environment, Development and Sustainability*, 10(2), 179-192.
- James, A. (2009). Agency. In J. Qvortrup, W. A. Corsaro, & M. S. Honig (Eds.), *The Palgrave handbook of childhood studies* (pp. 34-35). London: Palgrave Macmillan.
- James, A., & Prout, A. (Eds.). (1997). *Constructing and reconstructing childhood: Contemporary issues in the sociological study of childhood* (2<sup>nd</sup> ed.). London, Falmer Press.
- James, A., Jenks, C., & Prout, A. (1998). *Theorising childhood*. Cambridge, Polity Press.
- Jenks, C. (1996). *Childhood*. London: Routledge.

- Jensen, B. B. (1993). The concepts of action and action competence. Paper presented at The First International Workshop on the Project Children as Catalysts for Global Environmental Change. Department of Psychology, University of Surrey, Guildford.
- Jensen, B. B. (2002). Knowledge, action and pro-environmental behaviour. *Environmental Education Research*, 8(3), 325-334.
- Jensen, B. B. (2004). Environmental and health education viewed from an action-oriented perspective. A case from Denmark. *Journal of Curriculum Studies*, 36(4), 405-425.
- Jensen, B. B., & Schnack, K. (2006). The action competence approach in environmental education. *Environmental Education Research*, 3(2), 163-178.
- Jenkins, K. (2009). Linking theory to practice: Education for sustainability and learning and teaching. In M. Littledyke, N. Taylor, & C. Eames, *Education for Sustainability in the Primary Curriculum. A guide for teachers* (pp. 29-38). South Yarra: Palgrave Macmillan.
- Jickling, B., & Wals, A. E. J. (2012). Debating education for sustainable development 20 years after Rio: A conversation between Bob Jickling and Arjen Wals. *Journal of Education for Sustainable Development*, 6(1), 49-57.
- Johansson, E. (2009). The preschool child of today – The world citizen of tomorrow? *International Journal of Early Childhood*, 41(2), 79-95.
- Jones, P., Selby, D., & Sterling, S. (Eds.). (2010). *Sustainability education: Perspectives and practice across higher education*. Oxon: Earthscan.
- Just, P., & Monaghan, J. (2000). *Social and cultural anthropology: a very short introduction*. Oxford, Oxford University Press.
- Kahriman-Ozturk, D., Olgan, R., & Guler, T. (2012). Preschool children's ideas on sustainable development: How preschool children perceive three pillars of sustainability with the regard to 7R. *Educational Sciences: Theory & Practice. Special issue* (Autumn), 2987-2995.
- Kahriman-Ozturk, D., Olgan, R., & Tuncer, G. (2012). A qualitative study on Turkish preschool children's environmental attitudes through ecocentrism and anthropocentrism. *International Journal of Science Education*, 34(4), 629-650.
- Kaplan, S. (2000). Human nature and environmentally responsible behaviour. *Journal of Social Issues*, 5(3), 491-508.
- Kaplan, R., & Kaplan, S. (2003). Health, supportive environments, and the Reasonable Person Model. *American Journal of Public Health*, 93(9), 1484-1489.

- Kaplan, R., & Kaplan, S. (2009). Creating a larger role of environmental psychology: The Reasonable Person Model as an integrative framework. *Journal of Environmental Psychology*, 29, 329-339.
- Kehily, J. M. (2009). Understanding childhood: An introduction to some key themes and issues. In J. M. Kehily (Ed.), *An introduction to childhood studies*. (2<sup>nd</sup> ed., pp. 1-16). Maidenhead, Open University Press.
- Keliher, V. (1997). Children's perceptions of nature. *International Research in Geographical and Environmental Education*, 6(3), 240-242.
- Kellert, S. R. (1993). The biological basis for human values of nature. In S. R. Kellert & E. O. Wilson (Eds.), *The biophilia hypothesis* (pp. 42-69). Washington, D.C.: Island Press.
- Kempton, W., Boster, J. S., & Hartley, J. A. (1995). *Environmental Values in American Culture*. Cambridge, MA: MIT Press.
- Klefstad, J. M. (2015). Focus on Family: Environments That Foster Inquiry and Critical Thinking in Young Children: Supporting Children's Natural Curiosity, *Childhood Education*, 91(2), 147-149.
- Knapp, D. (2000). The Thessaloniki Declaration: A wake-up call for environmental education? *Journal of Environmental Education*, 31(3), 32-39.
- Kolb, D. A. (2015). *Experiential learning. Experience as the sources of learning and development*. (2<sup>nd</sup> ed.). New Jersey: Pearson Education, Inc.
- Kollmus, A. and Agyeman, J. (2002), Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental education research*, 8(3), 239-260.
- Kvale, S., & Brinkmann, S. (2009). *Interviews. Learning the craft of qualitative research interviewing* (2<sup>nd</sup> ed.) Thousand Oaks, CA: SAGE Publications, Inc.
- Kyburz-Graber, R. (2004). Does case-study methodology lack rigour? The need for quality criteria for sound case-study research, as illustrated by a recent case in secondary and higher education. *Environmental Education Research*, 10(1), 53-56.
- Lahman, M. (2008). Always othered. Ethical research with children. *Journal of Early Childhood Research*, 6(3), 281-300.
- Lavery, A. H., & Smyth, J. C. (2003). Developing environmental education, a review of a Scottish project: international and political influences. *Environmental Education Research*, 9(3), 359-383.
- Leal Filho, W. (2000). Dealing with misconceptions on the concept of sustainability. *International Journal of Sustainability in Higher Education*, 1, 9-19.

- Leal Filho, W. (2015). (Ed.) *Transformative approaches to sustainable development at universities. Working across disciplines*. World sustainability series. Cham Heidelberg, New York, Dordrecht, London: Springer.
- Lewin, K. (1951). *Field theory in social science*. New York, NY: Harper & Row.
- Liefländer, A. K., & Bogner, F. X. (2014). The Effects of Children's Age and Sex on Acquiring Pro-Environmental Attitudes Through Environmental Education, *The Journal of Environmental Education*, 45(2), 105-117.
- Liu, S. T., & Kaplan, M. (2006). An intergenerational approach for enriching children's environmental attitudes and knowledge. *Applied Environmental Education and Communication*, 5, 9–20.
- Lotz-Sisitka, H. (2009). How many declarations do we need? Inside the drafting of the Bonn Declaration on education for sustainable development. *Journal of Education for Sustainable Development*, 3(2), 205-210.
- Lucas, A. (1972). *Environment and environmental Education: Conceptual issues and curriculum implications* (unpublished Ph.D. thesis). Ohio State University.
- Lundy, L. (2007). Voice is not enough: Conceptualising Article 12 of the United Nations Convention on the Rights of the Child. *British Educational Research Journal*, 33(6), 927-942.
- MacDonald, D., Hanley, N., & Moffatt, I. (1999). Applying the concept of natural capital criticality to regional resource management. *Ecological Economics*, 29(1), 73-87.
- Mackey, G., & Vaealiki, S. (2011). Thinking of children: Democratic approaches with young children in research. *Australasian Journal of Early Childhood*, 36(2), 82-86.
- MacNaughton, G. (2005). *Doing Foucault in early childhood studies*. London: Routledge.
- Malm, A., & Hornborg, A. (2014). The geology of mankind? A critique of the Anthropocene narrative. *The Anthropocene Review*, 1(1), 62-69.
- Malone, K. (2007). The bubble-wrap generation: Children growing up in walled gardens. *Environmental Education Research*, 13(4), 513-27.
- Malta Union of Teachers. (2012). *Short history*. Malta Union of Teachers. Retrieved from <http://www/mut.org.mt/history.htm>

- Mandell, N. (1991). The Least-Adult Role in Studying Children. In F. C. Waksler (Ed.), *Studying the social worlds of children: Sociological readings* (pp. 38-59). London: Falmer Press.
- Manoli, C., Johnson, B., & Dunlap, R. (2007). Assessing Children's Environmental Worldviews: Modifying and Validating the New Ecological Paradigm Scale for Use With Children. *Journal of Environmental Education*, 38(4), 3-13.
- Marshall, C., & Rossman, G. B. (2011). *Designing qualitative research* (5<sup>th</sup> ed.). Thousand Oaks, CA: Sage Publications Inc.
- Martin, S., Dillon, J., Higgins, P., Peters, C., & Scott, W. (2013). Divergent evolution in education for sustainable development policy in the United Kingdom: Current status, best practice, and opportunities for the future. *Sustainability* 2013, 5, 1522-1544.
- Mason, J. (2002). *Qualitative researching* (2<sup>nd</sup> ed.). London: SAGE Publications Ltd.
- Matthews, S. H. (2007). A window on the 'new' sociology of childhood. *Sociology Compass*, 1(1), 322-334.
- Mayall, B. (2002). *Towards sociology for childhood: Thinking from children's lives*. Berkshire: Open University Press.
- Mayall, B. (2008). Conversations with children: Working with generational issues. In: Christensen, P. & James, A. (Eds.), *Research with children: Perspectives and practices* (2<sup>nd</sup> ed., pp. 109-124). London: Routledge.
- Mayo, P. (2005). In and against the state: Gramsci, war of position and adult Education. *Journal for Critical Education Policy Studies*, 3(2). Retrieved from <http://www.jceps.com>
- Mayo, P., Pace, P. J., & Zammit, E. (2008). Adult education in small states: the case of Malta. *Comparative Education*, 44(2), 229-246.
- McKenzie-Mohr, D., & Smith, W. (1999/2011). *Fostering sustainable behaviour: An introduction to community-based social marketing*. Gabriola Island, BC: New Society Publishers.
- Meeusen, C. (2014). The intergenerational transmission of environmental concern: The influence of parents and communication patterns within the family. *The Journal of Environmental Education*, 45(2), 77-90. DOI: 10.1080/00958964.2013.846290
- Meo, A. I. (2010). Picturing students' habitus: The advantages and limitations of photo-elicitation interviewing in a qualitative study in the city of Buenos Aires. *International Journal of Qualitative Methods* 2010, 9(2), 149-171.



- MEPA. (2008). *State of the environment indicators 2007*. Malta: MEPA & NSO. Retrieved from <https://www.mepa.org.mt/generaldocs/SOEI%202007.pdf>
- MEPA. (2006). *State of the Environment Report: 2005*. Malta: Malta Environment and Planning Authority.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education. Revised and expanded from case study research in education*. San Francisco, CA: Jossey-Bass Inc., Publishers.
- Mifsud, M. (1993). *Educational resources in state secondary schools and junior lyceums*. (Unpublished Bachelor's thesis). University of Malta.
- Mifsud, M. (2004). *What are the problems of implementing environmental education in the school sector*. Unpublished Master's thesis, London Southbank University, London, UK.
- Mifsud, M. (2012). Environmental education development in Malta: A contextual study of the events that have shaped the development of environmental education in Malta. *Journal of Teacher Education for Sustainability*, 14(1), 52-66. Retrieved from <http://versita.metapress.com/content/c23571k18840x7j2/fulltext.pdf>
- Mifsud, C., Milton, J., Brooks, G., & Hutchison, D. (2000). *Literacy in Malta*. London: NFER.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2<sup>nd</sup> ed.). Thousand Oaks, CA: SAGE Publications, Inc.
- Miller, E., & Almon, J. (2009). *Crisis in the kindergarten. Why children need to play in school*. Collage Park, MD: Alliance for Childhood.
- Ministry of Education. (1999). *Creating the future together: National minimum curriculum*. Malta: Ministry of Education.
- Ministry of Education & Employment. (2012). *A national curriculum framework for all*. Floriana, Malta: Ministry of Education & Employment.
- Ministry of Education & Employment. (2013). *Early childhood education & care in Malta: The way forward*. Malta: Ministry of Education & Employment. Retrieved from <http://education.gov.mt/en/Documents/Public%20Consultations/White%20Paper.pdf>
- Ministry of Education, Youth and Employment. (2005). *For all children to succeed: A new network organisation for quality education in Malta*. Floriana: Ministry of Education, Youth and Employment.

- Monaghan, A. (2009). Conceptual niche management of grassroots innovation for sustainability: The case for body disposal practices in the U.K. *Technological Forecasting and Social Change*, 76(8), 1026-1043.
- Mogensen, F., & Schnack, K. (2010). The action competence approach and the 'new' discourses of education for sustainable development, competence and quality criteria. *Environmental Education Research*, 16(1), 59-74.
- Monroe, M. (2003). Two avenues of encouraging conservation behaviors. *Human and Ecology Review, Society for Human Ecology*, 10(2), 113-125.
- Montefort, S., Ellul, P., Monefort, M., Caruana, S., & Agius Muscat, H. (2009). Increasing prevalence of asthma, allergic rhinitis but not eczema in 5- to 8-year old Maltese children (ISAAC). *Paediatric Allergy Immunology*, 20(1), 67-71.
- Moore, G. T. (2004). Environment, behaviour and society: A brief look at the field and some current EBS research at the University of Sydney. In the 6th International Conference of the Environment Behaviour Research Association Tianjin, China.
- Moran, E. F., & Brondizio, E. S. (2013). Introduction to human-environment interactions research. E. S. Brondizio, & E. F. Moran (2013). (eds.) *Human-Environment interactions: Current and future directions*. Dordrecht, Heidelberg, New York & London: Springer.
- Morgensen, F., & Mayer, M. (2005). *ECO-schools: Trends and divergences. A comparative study on ECO-school development processes in 13 countries*. Vienna: Austrian Ministry of Education, Science and Culture.
- Morrison, G. S. (2007). *Early childhood education today*. (10<sup>th</sup> ed.). New Jersey: Merrill Prentice Hall.
- Moss, P. (2007). Bringing politics into the nursery: Early childhood education as a democratic practice. *European Early Childhood Education Research Journal*, 15(1), 5-20.
- MRA. (2013). Malta's biennial report on policies and measures and projected greenhouse gas emissions 2013. Malta: Climate Change and Policy Unit. Report prepared by the Climate Change and Policy Unit. Submitted pursuant to Article 3(2) of Decision 280/2004/EC concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol and the related implementing provisions of Decision 2005/166/EC. Retrieved from <http://mra.org.mt/wp-content/uploads/2013/07/Malta-PAMs-Report-2013-V1.5.pdf>

- Mula' I., & Tilbury, D. (2009). A United Nations decade of education for sustainable development (2005–14): What difference will it make? *Journal of Education for Sustainable Development*, 3(1), 87-97.
- Murdoch, J. (1997). Towards a geography of heterogeneous associations. *Progress in Human Geography*, 21, 321-337.
- Murphy, T. P. (1993). The portrayal of the environment and development in two commercial movies. *Journal of Environmental Education*, 25(1), 3-36.
- Murphy, J. (2009). *Environment and imperialism: Why colonialism still matters*. Sustainability Research Institute. School of earth and environment. SRI papers (Online). ISSN 1753-1330. Leeds, UK: University of Leeds.
- Musser, L. M., & Diamond, K. E. (1999). The children's attitudes toward the environmental scale for preschool children. *The Journal of Environmental Education*, 30(2), 22-30.
- National Scientific Council on the Developing Child. (2007). *The timing and quality of early experiences combine to shape brain architecture*. Working paper #5. Harvard University. Retrieved from [http://developingchild.harvard.edu/resources/reports\\_and\\_working\\_papers/working\\_papers/wp5/](http://developingchild.harvard.edu/resources/reports_and_working_papers/working_papers/wp5/)
- Neimanis, A., Åsberg, C., & Hedrén, J. (2015). Four problems, four directions for environmental humanities: Toward critical posthumanities for the Anthropocene. *Ethics & the Environment*, Volume, 20(1), 67-97.
- Neumayer, E. (2003). *Weak versus strong sustainability: exploring the limits of two opposing paradigms*. London: Elgar.
- Newman, S. (1980). *Rationale for linking the generations*. Pittsburgh, PA: Generations Together Publications.
- Nilsson, A., Von Borgstede, C., & Biel, A. (2004). Willingness to accept climate change strategies: The effect of values and norms. *Journal of Environmental Psychology*, 24, 267-277.
- Nordlund, A.M., & Garvill, J. (2002). Value structures behind pro-environmental behaviour. *Environment and Behaviour*, 34(6), 740-756.
- Nordlund, A.M., & Garvill, J. (2003). Effects of values, problem awareness, and personal norm on willingness to reduce personal care use. *Journal of Environmental Psychology*, 23, 339-347.
- NSO – Malta. (2013). *Motor vehicles: Q1/2013. News Release*. Retrieved from [http://nso.gov.mt/en/News\\_Releases/View\\_by\\_Unit/Unit\\_A4/International\\_Trade\\_and\\_Transport\\_Statistics/Documents/2013/News2013\\_075.pdf](http://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_A4/International_Trade_and_Transport_Statistics/Documents/2013/News2013_075.pdf)

- NSO – Malta. (2014a). *National summary data page*. Retrieved from [http://www.nso.gov.mt/statdoc/document\\_file.aspx?id=3998](http://www.nso.gov.mt/statdoc/document_file.aspx?id=3998)
- NSO – Malta. (2014b). *Malta in Figures 2014*. Valletta: National Statistics Office, Malta.
- NSO – Malta (2015). *Motor vehicles: Q1/2014. News Release*. Retrieved from [https://nso.gov.mt/en/News\\_Releases/View\\_by\\_Unit/Unit\\_A4/International\\_Trade\\_and\\_Transport\\_Statistics/Pages/Motor-Vehicles.aspx](https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_A4/International_Trade_and_Transport_Statistics/Pages/Motor-Vehicles.aspx)
- O'Malley, S. (2015). The relationship between children's perceptions of the natural environment and solving environmental problems. *Policy & Practice: A Development Education Review*, 21, 87-104.
- OECD. (2006). *Starting strong 2: Early childhood education and care*. Paris: Organisation for Economic Co-operation and Development. Retrieved from <http://www.oecd.org/edu/school/startingstrongiiearlychildhoodeducationandcare.htm>
- OECD. (n.d.). Investing in high-quality early childhood education and care (ECEC). Retrieved from <http://www.oecd.org/edu/school/48980282.pdf>
- Office of the Commissioner for Children (Malta). (2013). *Annual report 2012*. Office of the Commissioner for Children. Malta: Office of the Commissioner for Children. Retrieved from [http://www.tfal.org.mt/MediaCenter/PDFs/1\\_Annual%20Report%20Tfal%20Eng%20Final%20+%20cover.pdf](http://www.tfal.org.mt/MediaCenter/PDFs/1_Annual%20Report%20Tfal%20Eng%20Final%20+%20cover.pdf)
- Ojala, M. (2011). Hope and climate change: The importance of hope for environmental engagement among young people. *Environmental Education Research*. Advance online publication. Doi: 10.1080/13504622.2011.637157, 1-18.
- Okoli, R. C. B. (2009). *Children's work: experiences of street vending children and young people in Enugu, Nigeria* (Unpublished Ph.D. Thesis). The University of Edinburgh.
- OMEP. (2010). *Children – citizens in a challenged world*. Retrieved from <http://www.327matters.org/Sustainability/Docs/OMEPbroENG.pdf>
- OMEP. (2013). *Annual report 2013*. Honk Kong: OMEP. Retrieved from [www.worldomep.org/wp-content/uploads/2013/12/Annual-Report-2013-EN-Sept-revised.pdf](http://www.worldomep.org/wp-content/uploads/2013/12/Annual-Report-2013-EN-Sept-revised.pdf)
- Orr, D. W. (1992). *Ecological literacy: Education and the transition to a postmodern world*. Albany: State University of New York Press.

- Orr, D. (2001). Foreword. In S. Sterling (Ed.), *Sustainable education: Re-visioning learning and change* (pp.7-9). Schumacher Briefing No. 6. Totnes, UK: Green Books.
- Ostman, R. E., & Parker, J. L. (1987). Impact of education, age, newspaper, and television on environmental knowledge, concerns and behaviours. *The Journal of Environmental Education*, 19(1), 3-9.
- Owens, P. (2004). Researching the development of children's environmental values in the early school years. *Researching Primary Geography*, 1(August), 64-76.
- Pace, P. (1995). Environmental education. In Z. Murphy (Ed.), *Reviewing Belgrade* (pp. 1- 24). Paris, France/Nairobi, Kenya: UNESCO-UNEP.
- Pace, P. (2002). *The role of education in promoting the sustainable use of our marine resources*. Valletta: Ministry of the Environment.
- Pace, P. (2007). Empowering citizens through education for sustainable development. In P. G. Xuereb (Ed.), *Business ethics and religious values in the European Union and Malta – for a moral level playing field* (pp. 209-220). The European Documentation and Research Centre, University of Malta: Civil Society Project Report 2007.
- Pace, P. (2009). Emerging from limbo: environmental education in Malta. In N. Taylor, M. Littledyke, C. Eames, & R. K. Coll (Eds.), *Environmental education in context. An international perspective on the development of environmental education* (pp. 73-82). Rotterdam: Sense Publishers.
- Palmer, J. A. (1995). Environmental thinking in the early years: understanding and misunderstanding of concepts related to waste management. *Environmental Education Research*, 1(1), 35-45.
- Palmer, J. A., Grodzinski-Jurczak, M., & Suggate, J. (2003). Thinking about waste: Development of English and Polish children's understanding of concepts related to waste management. *European Early Education Journal*, 11(2), 117-139.
- Palmer, J., Cooper, I., van der Vorst, R. (1997). Mapping out fuzzy buzzwords – Who sits were on sustainability and sustainable development. *Sustainable Development*, 5(2), 87-93.
- Park, C. (2004). Approaches to Environmental Management, Lancaster University, England, *Geography 374*, Lectures and Notes on Environmental Management.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3<sup>rd</sup> ed.) Thousand Oaks, CA: Sage.

- Payne, P. (2014). Children's conceptions of nature. *Australian Journal of Environmental Education*, 30(1), 68-75. doi 10.1017/ae.2014.26
- Phenice, L. A., & Griffiore, R. J. (2003). Young children and the natural world. *Contemporary Issues in Early Childhood*, 4(2), 167-171.
- Piaget, J. (1952). *The origins of intelligence in children*. New York, NY: International Universities Press, Inc.
- Pigozzi, M. J. (2007). Quality in education defines ESD. *Journal of Education for Sustainable Development*, 1(1), 27-35.
- Pirrie, A., Elliot, D., McConnell, F., & Wilkinson, J. E. (2006). *Evaluation of eco schools Scotland*. SCRE Research Report No. 124. Glasgow: SCRE.
- Piscopo, S. (2008). Education for sustainable development: the Malta story. In M. O'Donoghue (Ed.) *Global Sustainable Development: A Challenge for Consumer Citizens*. Bonn, Germany: IFHE / CDVEC. Retrieved from <http://educationforsustainabledevelopment.org/e-intro.html>
- Pramling Samuelsson, I. (2011). Why we should begin early with ESD: The role of early childhood education. *International Journal of Early Childhood*. 43(2), 103-118. Published online. Retrieved from <http://link.springer.com/article/10.1007%2Fs13158-011-0034-x#page-1>
- Pramling Samuelsson, I., & Kaga, Y. (2010). Early childhood education to transform cultures for sustainability. In L. Starke, & L. Mastny (Eds.), *2010 State of the world. Transforming cultures. From consumerism to sustainability*. A Worldwatch Institute report on progress toward a sustainable society (pp. 57-61). Retrieved from <http://blogs.worldwatch.org/transformingcultures/wp-content/uploads/2009/11/SOW2010-PreviewVersion.pdf>
- Pramling Samuelsson, I., & Kaga, Y. (Eds.). (2008). *The contribution of early childhood education to a sustainable society*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0015/001593/159355e.pdf>
- Prince, C. M. (1994). *Promoting an awareness of the natural environment: A meta-cognitive approach* (Unpublished M.Ed. thesis). Parlmernston North: Massey University.
- Prince, C. M. (2006). *A knowledge creation approach to environmental education in early childhood: Creating a community of learners* (Unpublished Ed.D. thesis). Massey University.
- Pring, R. (2004). *Philosophy of educational research* (2<sup>nd</sup> ed.). London: Continuum.

- Prout, A. (2005). *The future of childhood*. London: RoutledgeFalmer.
- Prout, A. (2011). Taking a step away from modernity: Reconsidering the new sociology of childhood. *Global Studies Childhood*, 1(1), 4-14.
- Prout, A., & James, A. (Eds.). (1997). *Constructing and reconstructing childhood: Contemporary issues in the sociological study of childhood*. London: Falmer Press.
- Pufall, P. B., & Unsworth, R. P. (2004). The imperative and process for rethinking childhood. In P. B. Pufall, & R. P. Unsworth (Eds.), *Rethinking childhood* (pp. 1-21). New Brunswick: Rutgers University Press.
- Punch, K. F. (2009). *Introduction to research methods in education*. London: SAGE Publications Ltd.
- Qvortrup, J. (1994). Childhood matters: An introduction. In J. Qvortrup, M. Brady, G. Sgritta, & H. Winterberger (Eds.), *Childhood matters: Social theory, practice and politics* (pp. 1-24). Aldershot: Avebury Press.
- Qvortrup, J. (2009). Childhood as a structural form. In J. Qvortrup, W. A. Corsaro, & M. S. Honing (Eds.), *The Palgrave handbook of childhood studies* (pp. 21-33). New York: Palgrave MacMillan.
- Radnor, H. (2002). *Researching your professional practice doing interpretive research*. Buckingham: Open University Press.
- Randeria, S. (2007). Global designs and local lifeworlds: colonial legacies of conservation, disenfranchisement and environmental governance in postcolonial India. *Interventions*, 9(1), 12-30.
- Redclift, M. (2005). Sustainable development (1987-2005): An oxymoron comes of age. *Sustainable Development. Special Issue: Critical Perspectives on Sustainable Development*, 13(4), 212-227.
- Redclift, M. (2009). The environment and carbon dependence. Landscapes of sustainability and materiality. *Current Sociology*, 5(3), 369-387.
- Redford, K. H. (1991). The ecologically noble savage. *Cultural Survival Quarterly*, 15(1), 46-48.
- Reid, A. (2011). Environmental education debate. In J. Newman, & P. Robbins (Eds.), *Green education: An A-to-Z guide* (pp. 149-155). Thousand Oaks, CA: Sage.
- Rejeski, D. W. (1982). Children look at nature: Environmental perception and education. *The Journal of Environmental Education*, 13(4), 27-40.

- Relph, E. (1976). *Place and placelessness*. London: Pion.
- Ribot, J. (2014). Cause and response: Vulnerability and climate in the Anthropocene. *Journal of Peasant Studies*, 41(5), 667-705.
- Rickinson, M. (2002). Environmental education: Recent research on learners and learning. *Spring 2002*, 27, 1-5.
- Rinaldi, C. (2005). *In dialogue with Reggio Emilia: Listening, researching and learning*. London: Routledge.
- Robinson, J. (2004). Squaring the circle? Some thoughts on the idea of sustainable development. *Ecological Economics*, 48(4), 369-384.
- Robottom, I., & Hart, P. (1993). *Research in environmental education: Engaging the debate*. Geelong: Deakin University Press.
- Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. Oxford: Oxford University Press.
- Rogoff, B. (2003). *The cultural nature of human development*. Oxford: Oxford University Press.
- Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing. The art of hearing data* (3<sup>rd</sup> ed.). Los Angeles: SAGE Publications, Inc.
- Sachs, W. (1993). Global ecology and the shadow of development. In: W. Sachs (Ed.), *Global ecology. A new arena of political conflict* (pp. 3-20). London: Zed Books.
- Sachs, A. (2003). The ultimate “other”: Post-colonialism and Alexander Von Humboldt’s ecological relationship with nature. *History and Theory*, 42(4), 111-135.
- Said, E. (1994). *Culture and Imperialism*. Vintage, London.
- Saldana, J. (2012). *The coding manual for qualitative researchers*. London: SAGE Publications Ltd.
- Santrock, J. W., MacKenzie-Rivers, A., Leung, K. H., & Malcomson, T. (2003). *Life-span development: First Canadian edition*. Toronto: McGraw-Hill Ryerson.
- Sarabhai, K. V. (2010). The “hand print” of Copenhagen. *Journal of Education for Sustainable Development*, 4(1), 1-3.
- Sauer, C. (1925). The morphology of landscape. *University of California Publications in Geography*, 2, 19-54.



- Schiller, W., & Einarsdottir, J. (2009). Special issue: Listening to young children's voices in research-changing perspectives/changing relationships. *Early Child Development and Care*, 179(2), 125-130.
- Schnack, K. (1998). Why focus on conflicting interests in environmental education? In M. Ahlberg & W. Filho (Eds) *Environmental Education for sustainability: Good environment, good life* (pp. 83-96). Frankfurt am Main: Lang.
- Schneller, A. J., Johnson, B., & Bogner, F. X. (2015). Measuring children's environmental attitudes and values in northwest Mexico: validating a modified version of measures to test the Model of Ecological Values (2-MEV). *Environmental Education Research*, 21(1).
- Schoon, N., Seath, F., & Jackson, L. (2013). *One planet living – The case of sustainable consumption and production in the post-2015 development agenda*. Bioregional. Retrieved from <https://sustainabledevelopment.un.org/content/documents/5483bioregional3.pdf>
- Schwartz, S. H. (1977). Normative influences on altruism. In Berkowitz, L. (Ed.) *Advances in experimental social psychology* (pp. 221-279). San Diego: Academic Press.
- Scott, W., & Gough, S. (2003). *Sustainable development & learning: Framing the issues*. New York, NY: RoutledgeFalmer.
- Scriha, L. (1994). Language and class in Malta. In R. Sultana, & G. Baldacchino, *Maltese society: A sociological inquiry*. Mireva Publications.
- SDSN. (2014). *Young children as the basis for sustainable development*. Issue Brief, 18 February 2014, prepared by the Thematic Group on Early Childhood Development, Education, and Transition to Work. Retrieved from <http://unsdsn.org/wp-content/uploads/2014/02/ECD-Brief1.pdf>
- Simpson, M., & Tuson, J. (2003). *Using observations in small-scale research. A Beginner's Guide*. Glasgow: The SCRE Centre, University of Glasgow.
- Siraj-Blatchford, J., Smith, K. C., & Pramling Samuelson, I. (2010). *Education for sustainable development in the early years*. Gothenburg, Sweden: OMEP.
- Skamp, K. (2010). *Critical review of current practice and research of environmental education and education for sustainability for kindergarten to year 12 from 1990*. NSW Government: Education and training. Retrieved from [http://www.curriculumsupport.education.nsw.gov.au/env\\_ed/assets/pdf/review\\_skamp2.pdf](http://www.curriculumsupport.education.nsw.gov.au/env_ed/assets/pdf/review_skamp2.pdf)

- Smith, A. B. (2002). Interpreting and supporting participation rights: Contributions from sociocultural theory. *The International Journal of Children's Rights*, 10, 73-88.
- Smyth, J. (1999). Is there a future for education consistent with Agenda 21? *Canadian Journal of Environmental Education*, 4, 69-83.
- Sollars, V., Attard, M., Borg, C., & Craus, B. (2006). *Early childhood education and care. A national policy 2006*. Malta: Ministry of Education, Youth and Employment.
- Sorin, R., & Gordon, I. J. (2013). Developing a methodology to assess children's perceptions of the tropical environment. *International Education Studies*, 6(2), 96-109.
- Stake, R. E. (1995). *The art of case study research: Perspectives on practice*. Thousand Oaks, CA: Sage.
- Stake, R. E. (2000). Case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 435 – 454). Thousand Oaks: Sage.
- Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3<sup>rd</sup> ed., pp. 443-466). Thousand Oaks, California: Sage Publications.
- Stake, R. E. (2006). *Multiple case study analysis*. New York: The Guildford Press.
- Stake, R. E. (2010). *Qualitative research. Studying how things work*. New York: The Guilford Press.
- Stapp, W. B., Bennett, D. W., Fulton, J., MacGregor, J., & Nowak, P. (1969). The concept of environmental education. *The Journal of Environmental Education*, 1(1), 30-31.
- Steg, L., Dreijerink, L., & Abrahamse, W. (2005). Factors influencing the acceptability of energy policies: A test of VBN theory. *Journal of Environmental Psychology*, 25, 415-425.
- Steg, L. & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of environmental psychology*, 29(3), 309-317.
- Sterling, S. (1993). Environmental education and sustainability: A view from holistic ethics. In J. Fien (Ed.), *Environmental education: A pathway to sustainability* (pp.69-98). Geelong, Victoria: Deakin University.
- Sterling, S. (2001). *Sustainable education: Revisioning learning and change*. Darlington, Devon: Green Books.

- Sterling, S. (2010). Living in the earth: Towards an education for our times. *Journal of Education for Sustainable Development*, 4(2), 213-218.
- Stern, P. (2000). New environmental theories: Toward a coherent theory of environmentally significant behaviour. *Journal of Social Issues*, 56(3), 407-424.
- Stern, P., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues*, 50(3), 65–84. doi:10.1111/j.1540-4560.1994.tb02420.x
- Stern, P., Dietz, T., & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment and Behaviour*, 25, 322-348.
- Stevenson, R. B., Wals, E. J., Dillon, J., & Brody, M. (2013). Introduction: An orientation to environmental education and the handbook. In R. B. Stevenson, M. Brody, J. Dillon, & A. E. J. Wals, (Eds.), *International handbook of research on environmental education* (pp.1-6). New York: Routledge.
- Stocker, L., & Kennedy, D. (2009). Cultural models of the coast of Australia: Toward sustainability. *Coastal Management*, 37(5), 387-404.
- Strauss, A., & Corbin, J. (Eds.). (1997). *Grounded theory in practice*. Thousand Oaks, CA: Sage.
- Strom, R., & Strom, S. (1995). Intergenerational learning: grandparents in schools. *Educational Gerontology*, 21(4), 321-336.
- Stuhmcke, S. M. (2012). *Children as change for sustainability: An action research case study in a kindergarten* (Unpublished Ed.D. thesis). Queensland University of Technology.
- Sultana, R. G. (1999). *The secondary education certificate and matriculation examinations in Malta: A case study*. Geneva: International Bureau of Education.
- Sultana, R. & Baldacchino, G. (1994). *Maltese Society: A Sociological Inquiry*. Msida: Mireva.
- Sutherland, D., & Ham, S. (1992). Child-to-parent transfer of environmental ideology in Costa Rican families: An ethnographic case study. *Journal of Environmental Education*, 23(3), 9-16.
- Swayze, N., & Creech, H. (2009). *Sustainability policies at the school division level in Manitoba. The status of policy development and its relationship to actions on schools*. Canada: IISD. Retrieved from [www.iisd.org](http://www.iisd.org)

- The Education Act of Malta (Chapter 327 of the Laws of Malta, 1988). Retrieved from  
<http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8801>
- Tilbury, D. (1995). Environmental education for sustainability: Defining the new focus of environmental education in the 1990s. *Environmental Education Research*, 1(2), 195-212.
- Tilbury, D. (1997). Environmental education: A head, heart and hand approach to learning about environment problems. *New Horizons in Education*, 38, 1-8.
- Tilbury, D. (2004). Rising to the challenge: Education for sustainability in Australia. *Australian Journal of Environmental Education*, 20(2), 103–114.
- Tilbury, D. (2009). Tracking our progress: A global monitoring and evaluation framework for the UNDESD. *Journal of Education for Sustainable Development*, 3(2), 189-193.
- Tilbury, D. (2011). *Education for sustainable development. An expert review of processes and learning*. Paris: UNESCO. Retrieved from  
<http://unesdoc.unesco.org/images/0019/001914/191442e.pdf>
- Tilbury, D., & Cooke, K. (2005). *A national review of environmental education and its contribution to sustainability: Frameworks for sustainability*. Canberra, Australia: Australian Government Department of the Environment and Water Resources and the Australian Research Institute in Education for Sustainability (ARIES).
- Tilbury, D., & Wortman, D. (2004). *Engaging people in sustainability*. Gland, Switzerland: IUCN.
- Tilbury, D., Stevenson, R. B., Fien, J., & Schreuder, D. (2002). *Education and sustainability. responding to the global change*. Gland, Switzerland & Cambridge, UK: IUCN Commission on Education and Communication.
- Tisdall, E. K. M. (2010). Not so 'new'? Looking critically at Childhood Studies. *Exploring children's relationships across minority and majority worlds. ESRC Seminar Series, 29 April 2010*. Retrieved from  
[http://www.academia.edu/1970598/Not\\_So\\_New\\_Looking\\_Critically\\_at\\_Childhood\\_Studies](http://www.academia.edu/1970598/Not_So_New_Looking_Critically_at_Childhood_Studies)
- Tisdall, E. K. M., Davis, J., & Gallegher, M. (2009). *Researching with children and young people. Research design, methods and analysis*. London: SAGE Publications Ltd.
- Tisdall, E. K. M. & Punch, S. (2012). Not so new? Looking critically at childhood studies. *Children's Geographies*, 10(3), 249-264.

- Trevarthen, C. (1998). The child's need to learn a culture. In M. Woodhead, D. Falukner, & K. Littleton (Eds.), *Cultural worlds of early childhood* (pp. 87-100). London: Routledge.
- Tuan, Y. F. (1974). *Topophilia: A study of environmental perception, attitudes, and values*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Tzuo, P. W., Yang, C. H., & Wright, S. K. (2011). Review: Child-centred education: Incorporating reconceptualism and poststructuralism. *Educational Research and Reviews*, 6(8), 554-559. Retrieved from [http://www.academicjournals.org/article/article1379767992\\_Tzuo%20et%20al..pdf](http://www.academicjournals.org/article/article1379767992_Tzuo%20et%20al..pdf)
- UN. (1989). *Convention on the rights of the child*. Adopted and opened for signature, ratification and accession by General Assembly resolution 44/25 of 20 November 1989 entry into force 2 September 1990, in accordance with article 49. Geneva: United Nations High Commissioner for Human Rights. Retrieved from <http://www.ohchr.org/en/professionalinterest/pages/crc.aspx>
- UN. (1994). *Report of the Global Conference on the Sustainable Development of Small Island Developing States*. Bridgetown, Barbados, April 25–May 6. New York: United Nations.
- UN. (2002). *United Nations decade of education for sustainable development*. General Assembly Resolution 57/254, 20 December 2002. Retrieved from <http://www.un-documents.net/a57r254.htm>
- UN. (2005). *Report of the International Meeting to review the implementation of the Programme of Action for the Sustainable Development of Small Island Developing States*. Port Louis, Mauritius, January 10-14 2005. New York: United Nations.
- UN. (2006). *Convention on the rights of the child. General comment No. 7 (2005). Implementing child rights in early childhood*. Committee on the Rights of the Child (CRC/C/GC/7/Rev.1). Retrieved from <http://www2.ohchr.org/english/bodies/crc/docs/AdvanceVersions/GeneralComment7Rev1.pdf>
- UN. (2012). (UNCESD – Rio+20) *Report of the United Nations conference on sustainable development*. Brazil: Rio de Janeiro & New York: United Nations. Retrieved from <http://www.uncsd2012.org/content/documents/814UNCSD%20REPORT%20final%20revs.pdf>
- UN. (2014). Culture and sustainable development in the post-2015 development agenda. United Nations General Assembly Special Thematic Debate. United Nations Headquarters, New York, 5 May 2014. Retrieved from

[http://www.un.org/en/ga/president/68/pdf/culture\\_sd/Culture%20and%20SD%20Summary%20of%20Key%20Messages\\_FINAL%20rev.pdf](http://www.un.org/en/ga/president/68/pdf/culture_sd/Culture%20and%20SD%20Summary%20of%20Key%20Messages_FINAL%20rev.pdf)

- UNCED. (1992). *Earth Summit. Agenda 21. The Rio Declaration on environment and development*. United Nations Conference on Environment and Development (UNCED), promoting education and public awareness and training, 3-14 June, Rio de Janeiro, Brazil. Retrieved from <http://www.un.org/esa/dsd/agenda21/index.shtml>
- UNECE. (2005). *UNECE strategy for education for sustainable development, adopted at the high-level meeting*. High-level meeting of Environment and Education Ministries (Vilnius, 17-18 March 2005) (Agenda items 5 and 6). Geneva, United Nations Economic Commission for Europe.
- UNECE. (2014). *Informal country report (Malta)*. Questionnaire for 2014 informal country reporting on the implementation of the priority actions areas. Retrieved from <http://www.unece.org/fileadmin/DAM/env/esd/9thMeetSC/Documents/Malta.pdf>
- UNEP. (1972). *Declaration of the United Nations Conference on the human environment*, 1972. Stockholm, Sweden: UNEP.
- UNEP. (2011). *Keeping track of our changing environment: From Rio to Rio+20 (1992-2012)*. Nairobi, Kenya: Division of Early Warning and Assessment (DEWA), UNEP. Retrieved from [http://www.unep.org/geo/pdfs/keeping\\_track.pdf](http://www.unep.org/geo/pdfs/keeping_track.pdf)
- UNESCO. (2006). *Framework for the UNDESD international implementation scheme*. Paris: UNESCO Education Sector (ED/DESD/2006/PI/1). Retrieved from <http://unesdoc.unesco.org/images/0014/001486/148650E.pdf>
- UNESCO. (1975). *The Belgrade Charter: A global framework for environmental education*. Paris: UNESCO.
- UNESCO. (1997a). *Education for a sustainable future: A transdisciplinary vision for concerned action*. Paper presented at the International Conference on Environment and Society: Education and Public Awareness for Sustainability, Thessaloniki, Greece. Retrieved from <http://unesdoc.unesco.org/images/0011/001106/110686eo.pdf>
- UNESCO. (1997b). *Declaration of Thessaloniki*. Paper presented at the International Conference on Environment and Society: Education and Public Awareness, Thessaloniki.
- UNESCO. (2002). *Education for sustainability. From Rio to Johannesburg: Lessons learnt from a decade of commitment*. Report presented at the

Johannesburg World Summit for Sustainable Development. World Summit on Sustainable Development, Johannesburg, 26 August – 4 September 2002. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0012/001271/127100e.pdf>

UNESCO. (2005a). *UN decade of education for sustainable development 2005 – 2014. The DESD at a glance*. Paris, France: United Nations Educational Scientific and Cultural Organisation, Division for the Promotion of Quality Education. Retrieved from <http://unesdoc.unesco.org/images/0014/001416/141629e.pdf>

UNESCO. (2005b). *United Nations decade of education for sustainable development 2005 – 2014: International implementation scheme*. Paris, France: United Nations Educational Scientific and Cultural Organisation, Division for the Promotion of Quality Education. (ED/DESD/2005/PI/01) October, 2005. Retrieved from <http://unesdoc.unesco.org/images/0014/001486/148654E.pdf>

UNESCO. (2005c). *Four dimensions of sustainable development*. Retrieved from [http://www.unesco.org/education/tlsf/mods/theme\\_a/popups/mod04t01s03.html](http://www.unesco.org/education/tlsf/mods/theme_a/popups/mod04t01s03.html)

UNESCO. (2005d). *UN decade of education for sustainable development (2005-2014)*. Retrieved from [www.unesco.org/education/tlsf/extras/img/DESDbrief.pdf](http://www.unesco.org/education/tlsf/extras/img/DESDbrief.pdf)

UNESCO. (2005e). *Unesco and sustainable development*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0013/001393/139369e.pdf>

UNESCO. (2005f). *UN decade of education for sustainable development 2005-2014. The DESD at a glance*. Paris, UNESCO. Retrieved from [www.unesco.org/education/desd](http://www.unesco.org/education/desd)

UNESCO. (2007). *The Ahmedabad Declaration 2007: A call to action. Education for life: life through education*. 28<sup>th</sup> November 2007. Retrieved from [www.tbilisiplus30.org/Ahmedabad%20Declaration.pdf](http://www.tbilisiplus30.org/Ahmedabad%20Declaration.pdf)

UNESCO. (2008b). *The Gothenburg recommendations on education for sustainable development*. Adopted November 12, 2008. Sweden: University of Gothenburg. Retrieved from <http://www.wwf.se/source.php/1234157/Goteborgsrekommendationerna.pdf>

UNESCO. (2009a). *The Bonn Declaration*, UNESCO world conference on education for sustainable development 31<sup>st</sup> March – 2<sup>nd</sup> April, 2009. UNESCO May 2009. Retrieved from [http://www.desd.org/ESD2009\\_BonnDeclaration080409.pdf](http://www.desd.org/ESD2009_BonnDeclaration080409.pdf)



- UNESCO. (2009b). *Conference on the parties of the United Nations framework convention on climate change*, Fifteenth Session, 7-18 December, 2009, Copenhagen, Den., Draft decision -/CP.15: Proposal by the President, Copenhagen Accord, UN Doc. FCCC/CP/2009/L.7 (18 December 2009).
- UNESCO. (2010). *World conference on early childhood care and education (ECCE): Building the wealth of nations. Moscow framework for action and cooperation: Harnessing the wealth of nations*. 27-29 September 2010. Moscow, the Russian Federation. Retrieved from [http://www.unesco.de/fileadmin/medien/Bilder/Bildung/WCECCE\\_MoscowPlanOfAction.pdf](http://www.unesco.de/fileadmin/medien/Bilder/Bildung/WCECCE_MoscowPlanOfAction.pdf)
- UNESCO. (2012a). *UN system task theme on the post-2015 UN development agenda. Culture: a driver and an enabler of sustainable development*. Thematic Think Piece. UNESCO. Retrieved from <https://en.unesco.org/post2015/sites/post2015/files/Think%20Piece%20Culture.pdf>
- UNESCO. (2012b). *Side Events – Rio+20. Rio+20 education for a sustainable future: UNESCO side-event at Rio+20 on education for sustainable development*. Retrieved from [http://www.unesco.org/new/en/unesco/events/rio20/?tx\\_browser\\_pil%5BshowUId%5D=6304&cHash=e94d801926](http://www.unesco.org/new/en/unesco/events/rio20/?tx_browser_pil%5BshowUId%5D=6304&cHash=e94d801926)
- UNESCO. (2013). *Education for sustainable development (ESD): A sound investment to accelerate African development*. Retrieved from <https://en.unesco.org/events/education-sustainable-development-esd-sound-investment-accelerate-african-development>
- UNESCO. (2014). *Shaping the future we want. UN decade for education for sustainable development (2005-2014). Final Report*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0023/002301/230171e.pdf>
- UNESCO. (n.d.). *Education: Mission*. Retrieved from <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/mission/>
- UNESCO-UNEP. (1978, April). *Final report: Intergovernmental conference on environmental education organized by UNESCO in co-operation with UNEP*. Tbilisi (USSR) Declaration, 14-26, October 1977. Paris: UNESCO. Retrieved from [http://www.gdrc.org/uem/ee/EE-Tbilisi\\_1977.pdf](http://www.gdrc.org/uem/ee/EE-Tbilisi_1977.pdf)
- UNFCCC. (2008). *Kyoto protocol*. Retrieved from <http://unfccc.int/kyotoprotocol/items/2830.php>
- UNICEF. (2013). *Sustainable development starts and ends with safe, healthy and well-educated children. a post-2015 world fit for children*. Retrieved from [http://www.unicef.org/parmo/files/SD\\_children\\_FINAL\(1\).pdf](http://www.unicef.org/parmo/files/SD_children_FINAL(1).pdf)



- Uprichard, E. (2008). Children as “being and becomings”: Children, childhood and temporality. *Children and Society*, 22, 303-313.
- Uzzell, D. (1994). *Children as catalysts for environmental change*. Final Report. Brussels, Belgium: European Commission Directorate General for Science Research and Development Joint. Research Centre. Retrieved from [http://www.academia.edu/1131741/Children as Catalysts of Environmental Change](http://www.academia.edu/1131741/Children_as_Catalysts_of_Environmental_Change)
- Uzzell, D. (1999). Education for environmental action in the community: New roles and relationships. *Cambridge Journal of Education*, 29(3), 397-413.
- Van Dam-Mieras, M. C. E., & Rikers, J. H. A. N. (2007). Towards learning for sustainable development. *Journal for Sustainable Development*, 1(1), 51-60.
- Vare, P., & Scott, W. (2007). Learning for a change: Exploring the relationship between education and sustainable development. *Journal of Education for Sustainable Development*, 1(2), 191-198.
- Vaughan, C., Gack, J., Soloranzano, H., & Ray, R. (2003). The effect of environmental education on schoolchildren, their parents, and community members: A Study of intergenerational and intercommunity learning. *The Journal of Environmental Education*, 34(3), 12-21.
- Veale, A. (2011). Creative methodologies in participatory research with children. In S. Greene, & D. Hogan (Eds.), *Researching children's experiences: Methods and approaches* (pp. 253-272). London: SAGE Publications Ltd.
- Vella, N., & Tedesco, L. (Writers, Producers & Directors). (2015, April 23). Newsfeed. [Television news broadcast]. Blata l-Bajda, Malta: Net TV.
- Ventura, F. (1993). Science and environmental education at the primary level in Malta: Separate interests, different roles. *International Journal of Science Education*, 15(1), 509-519.
- Ventura, F. (1994). Environmental education – the Malta experience. In W. L. Filho (Ed.) *Environmental education in small island developing states* (pp. 15–32). Vancouver: The Commonwealth of Learning.
- Vidal de la Blache, P. (1908). *Tableaux de la géographie de la France*. Paris: Librairie Hachette.
- Visanich, V. (2009). The Maltese youth: A brief overview. In J. Cutajar & G. Cassar (Eds.) *Social transitions in Maltese society*. Luqa, Malta: Agenda Publishers.
- Vygotsky, L. S. (1971). *The psychology of art*. Cambridge, MA: MIT Press.

- Vygotsky, L. S. (1978). *Mind in society: Development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1997). *Educational psychology*. Florida: St. Lucie Press.
- Wain, K. (1995). *Tomorrow's schools: Developing effective learning cultures*. Valletta: Education Division.
- Walker, K. (1995). *Improving the teaching and learning of environmental education in the NSW primary school curriculum: A problem-based approach*. Unpublished Ph.D. thesis. Sydney: University of Technology.
- Walker, K., Loughland, T., & Brady, L. (2000). *The socio-cultural influences on environmental understanding of NSW school children*. A benchmark survey of the environmental knowledge, values and attitudes of NSW school children: 2000. Sydney: Faculty of Education, University of Technology.
- Walkerdine, V. (2004). Developmental psychology and the study of childhood. In M. J. Kelhily (Ed.), *An introduction to childhood studies* (pp. 96-107). Maidenhead: Open University Press.
- Wals, A. E. J. (1992). Young adolescents' perceptions of environmental issues: Implications for environmental education in urban settings. *Australian Journal of Environmental Education*, 8, 45-58.
- Wals, A. E. J. (1994). Nobody planted it, it just grew! Young adolescents' perceptions and experiences of nature in the context of urban environmental education. *Children's Environments*, 11(3), 177-193.
- Wals, A. (2009). *Review of contexts and structures for education for sustainable development: 2009. Learning for a sustainable world*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0018/001849/184944e.pdf>
- Washington, H. (2013). *Human dependence on nature. How to help solve the environment crisis*. London and New York: Routledge Taylor & Francis Group.
- WECD. (1987). *Report of the World Commission on Environment and Development (WCED): our common future*. Retrieved from <http://www.un-documents.net/wced-ocf.htm>
- Weeks, G. E. (2010). *Perceptions of environmental sustainability held by students in a NSW primary school* (Unpublished Ed.D. thesis). University of Technology, Sydney.
- Wertsch, J. V. (1985). *Vygotsky and the social formation of mind*. Cambridge, MA: Harvard University Press.

- Whatmore, S. (1999). Hybrid geographies: rethinking the 'human' in human geography. In D. Massey, J. Allen & P. Sarre (Eds.), *Human geography today* (pp. 22-39). Cambridge: Polity Press.
- Whatmore, S. (2002). *Hybrid geographies*. London: Sage.
- White, R. M. (2013). Sustainability Research: A novel mode of knowledge generation to explore alternative ways for people and the planet. In S. Sterling, L. Maxey, & H. Luna (Eds.) (2013). *The sustainable university: Progress and prospects* (pp. 168-191). Oxon: Routledge.
- White, R., Beddington, J., & van Koten, H. (2012). *Designing the transition to sustainability: resourcing community resilience*. (2<sup>nd</sup> ed.). A report for the Scottish universities insight institute (September, 2012).
- White, R. M. & Harder, M. K. (2013). The journey towards sustainability via community: Lessons from two UK universities. In S. Sterling, L. Maxey, & H. Luna (Eds.) (2013). *The sustainable university: Progress and prospects* (pp. 132-150). Oxon: Routledge.
- WHO. (2009). *Environment and health performance review Malta*. Denmark: Publications WHO Regional Office for Europe. Retrieved from [http://www.euro.who.int/\\_data/assets/pdf\\_file/0006/95343/E93547.pdf](http://www.euro.who.int/_data/assets/pdf_file/0006/95343/E93547.pdf)
- Wilson, R. A. (1994). *Preschool children's perspectives on the environment*. Paper presented at the International Conference of the North American Association for Environmental Education, Cuncun, Mexico.
- Wood, D., Bruner, J., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, 17, 89-100.
- Wood, E., & Attfield, J. (2005). *Play, learning and the early childhood curriculum* (2<sup>nd</sup> ed.). London: Paul Chapman.
- Woodhead, M. (2005). Early childhood development: A question of rights. *International Journal of Early Childhood*, 37(3), 79-98.
- Woodhead, M. (2006). Changing perspectives on early childhood: theory, research and policy. Changing perspectives on early childhood: theory, research and policy. *International Journal of Equity and Innovation in Early Childhood*, 4(2), 1-43.
- Wright, T. S. A. (2002). Definitions and frameworks for environmental sustainability in higher education. *International Journal of Sustainability in Higher Education*, 3(3), 203-220.

- WSSD. (2002). *The Johannesburg plan of implementation*. The World Summit on Sustainable Development (WSSD), Johannesburg (South Africa), 26 August-4 September 2002. Retrieved from [http://www.un.org/jsummit/html/documents/summit\\_docs/131302\\_wssd\\_report\\_reissued.pdf](http://www.un.org/jsummit/html/documents/summit_docs/131302_wssd_report_reissued.pdf)
- Yencken, D., Fien, J., & Sykes, H. (Eds.) (2000). *Environment, educationn and society in the Asia-Pacific*. London and New York: Routledge.
- Yencken, D., & Wilkinson, D. (2002). *Resetting the compass. Australia's journey towards sustainability*. Collingwood, Australia: CSIRO PUBLISHING.
- Yin, R. K. (2009). *Case study research: Design and methods* (4<sup>th</sup> ed.). Thousand Oaks, CA: Sage.
- Young, R. J. C. (2003). *Postcolonialism: A very short introduction*. Oxford: Oxford University Press.
- Zartler, U. (2014). Photo interviews with children: Relating the visual and the verbal from a participation perspective. *International Journal of Child, Youth, and Family Studies* (2014), 5(4.1), 629-648.
- Zalasiewicz, J., Williams, M., Haywood, A., & Ellis, M. (2011). The Anthropocene: a new epoch of geological time? *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 369, 835-841.
- Zimmerman, M. E. (1993). *Environmental philosophy: from animal rights to radical ecology*. Englewood Cliffs, N.J: Prentice-Hall.

## **Appendices**

In this section, appendices related to the literature review and theory are listed in alphabetical order, whereas appendices related to the data collection and analysis are listed in numerical order.

## Appendix A

### Educational reforms in Malta

In recent years, the structure and organisation of the Maltese education system has experienced some change. Indeed, the State education system has been comprehensively reviewed and various policies and reports were developed in different sectors of education in an attempt to provide an improved holistic quality education that would help all children attending compulsory education in Malta to succeed as active citizens in a globalised world.

The policy document entitled “For all children to succeed” (Ministry of Education, Youth & Employment, 2005) introduced the idea of a network of 10 Colleges. Each College was made up of schools network system and each State school formed part of a network with other schools in the same geographical area, depending on their locality. State schools were asked to work in partnership with one another, share resources and create new practices of teaching and learning within the specific context of their College. Each college is guided and administered by a College Principal (EURYDICE, 2011a). This system was piloted in the scholastic year 2005/2006 with the introduction of the first three Colleges and by the scholastic year 2007/2008 all Colleges were fully functional. Each College has its own independent board of governors, and will in due course be able to recruit its own staff and manage its own budget. This reform was introduced in order to enable children to progress from primary to secondary school with an assessment aimed based individual learning.

Until 2006, the State-funded system of compulsory schooling was centralised and managed by the Education Division within the Ministry of Education. In recent years, through amendments to the Education Act (Act XXXII/2006), a considerable amount of changes have taken place. The administration of the national education system was divided into two directorates are: the Directorate for Quality and Standards in Education (DQSE), which is responsible for establishing and monitoring the standards and quality of educational programmes and services provided in all schools (State and private), through the compulsory education cycles; and the Directorate for Educational Services (DES), which plans, manages and provides resources and services to schools in collaboration with Colleges and schools and is responsible for the promotion of life-long learning and the facilitation of opportunities and possibilities for continuing education. The principal aim for setting up the DQSE and the DES was to ensure better performance of the regulatory and operational aspects of the Maltese education system as a whole (Ministry of Education, Youth and Employment, 2005).

The Ministry of Education and Employment is responsible for Quality Assurance<sup>14</sup> within the Maltese education system in order to establish and maintain

---

<sup>14</sup> Quality Assurance established that the DQSE is required to provide ongoing evaluations and audits of all the schools (State, Church and independent) in Malta so as to guarantee optimum quality education especially in terms of educational programmes and services, of operations, and of assuring quality at every level of education (from pre-primary to tertiary).

standards in the context of the National Qualifications Framework. Each school formulates its School Development Plan (SDP) in which key priority areas to be tackled by the school are identified and at the end of each school year an audit exercise is carried out to assess whether these targets are reached. Usually, the SDP is developed by teachers and head teachers during after school staff development meetings, which take place once per term and last approximately two hours.

Since 2011, streaming according to academic ability is now also removed from State primary schools and a national End of Primary Benchmark assessment in Maltese, English and Mathematics has been introduced for students in their final year of primary school (EURYDICE, 2011a). As an attempt to review the NMC (Ministry of Education, 1999), the DQSE launched a new National Curriculum Framework (NCF) in May 2011. This review addressed the principles and objectives of the national curriculum in order to reflect the recent developments within the Maltese cultural context; emphasised educational practices which affect teaching and learning practices; and provided a clear direction for teaching and learning at College and school level. This process led to the introduction of the NCF in October 2013 (Ministry of Education & Employment, 2012). Other significant curricular reforms related to ECCE include:

1. *A National Policy and Strategy for the Attainment of Core Competences in Primary Education*, formulated in 2009 by the DQSE, to ensure the universal mastery of basic bilingual literacy, numeracy and e-literacy in the early years of compulsory schooling.
2. There are various programmes, particularly in primary education, aimed at enhancing and promoting language learning, set up by the Foundation for Educational Services (FES) and the Curriculum Management and eLearning Department.
3. An eLearning strategy was aimed at integrating Information and Communications Technology (ICT) with traditional teaching systems. As a result, interactive whiteboards and other audiovisual tools for interactivity were set up in kindergarten and primary classrooms.

Within the Maltese education system there are also provisions to facilitate the international dimension in education, including the participation in international exchange educational programmes of students and teachers; the international recognition of courses; the benchmarking of performance of institutions to international standards; and the establishment of partnerships between Maltese and foreign educational institutions to organise courses (EURYDICE, 2011a). These initiatives have reformed the Maltese education system, thus indicating that the Government has placed education as one of its highest priorities.

### **Training and qualifications of staff in Kindergartens in Malta**

In 1975, kindergarten assistants had to be 18 and older, and required a minimum of four 'O' level passes, including Maltese, English<sup>15</sup> and Maths, to be

---

<sup>15</sup> In 1977 the call indicated English as one of the subjects required. The Selection Board asked for a ruling to determine whether this meant English Language or English Literature. During the

eligible to apply for the post (Sollars et al., 2006). Selected candidates had to undergo a crash training programme of about six months in order to learn teaching methods and techniques related to children of this age (Sollars et al., 2006).

Between 1991 and 2003, the Education Division offered a two-year full-time course leading to a pre-school certificate, which focused on working with 3- to 5-year-olds (Sollars et al., 2006). This was recognised as the requirement for people who wanted to work with 3 and 4 year old children. Every year, 30 participants were accepted for this course. Sollars et al. (2006) reported that most of these participants were unable to find employment in the State education sector as the sector was already saturated. In 2002, the Malta College of Arts Science and Technology (MCAST)<sup>16</sup> started running the course instead. Participants aged 16 and older could enrol for this course. This was still a two-year course, making Malta the only country with the shortest course for pre-school staff training (Sollars et al., 2006).

The need for better training for kindergarten assistants has long been felt. In 2007, the Government and the MUT signed an agreement which stipulated that new personnel to be recruited in kindergarten settings ought to have an initial teaching degree from 2015 onwards (Ministry of Education & employment, 2013). In response to this agreement, the University of Malta has offered a part-time B.Ed. (Hons.) degree in early childhood education and care, targeted at existing practitioners, in 2009, 2010 and 2011). As from October 2013, the University of Malta started offering a four-year full-time B.Ed. (Hons.) in ECCE. In 2009, a Memorandum of Understanding between the DES and Malta Union of Teachers (MUT)<sup>17</sup> where kindergarten assistants had to have at least successfully completed MCAST National Diploma course<sup>18</sup> (later became known as the BTEC-MCAST programme) approved by DES and DQSE and delivered by MCAST, which is the leading vocational training institution in Malta.

The Ministry of Education and Employment (2013) reported that of the 486 kindergarten assistants employed in the State sector, 62 (12.8%) were in possession of a qualification listed as “pre-school education”; one person had a Masters degree in Early Childhood and four individuals were in possession of qualifications in other areas of interest (for example, an M.A. in Creativity & Innovation; a Diploma in Facilitating Inclusive Education (p. 40). In addition to the 486 kindergarten assistants,

---

discussions leading to the signing of the Agreement, it was agreed that ‘English’ should mean either English Language or English Literature. In 1982 the requirements for the post of Kindergarten Assistants were four (4) GCE ‘O’ level passes or equivalent qualifications, including Maltese and English Language or Literature.

<sup>16</sup> MCAST is responsible for vocational training.

<sup>17</sup> Director General Circular dated 26th May 2009 Ref DES/DQSE/01/2009: Memorandum of Understanding between the Government of Malta and the Malta Union of teachers

<sup>18</sup><http://www.mcast.edu.mt/MainMenu/Full-TimeCourses/CoursesbyInstitute/InstituteOfCommunityServices/Courses.aspx?CourseID=924>



the State sector employs a further 58 supply kindergarten assistants<sup>19</sup>, one of whom is in possession of the pre-school certification<sup>20</sup> (Ministry of Education and Employment, 2013, p. 40).

### **Training and qualifications of teachers in compulsory education in Malta**

In mid-19<sup>th</sup> century, teacher training in Malta was limited and unorganised<sup>21</sup> (Sollars et al., 2006). In the 20<sup>th</sup> century, a teacher training college (known as The College) was run by the nuns of the Sacred Heart who were responsible to female teacher education in Malta, while the Christian Brothers were responsible for the education of male teachers<sup>22</sup>. Teacher training courses were residential.

In 1971, teacher training course was extended from two years to three years. In 1973, teacher training programme was re-organised within a single institution, where female and male teachers were educated together and the course ceased to be residential and under the influence of religious orders. The College became the known as the Malta College of Education (Camilleri, 1978). At the same time, a one-year post-graduate certificate course in Education (PGCE) for university graduates was also introduced by the University of Malta.

Between 1975 and 1978, teacher training programme became part of the MCAST. In 1978, the Labour Government at the time reformed tertiary education, as a result of which it set up the Faculty of Education in an effort to improve the quality of teacher training in Malta and teacher training course was upgraded to Bachelor's degree course in Education. This course was then again upgraded to honours degree level<sup>23</sup>. During the initial teacher training at the University of Malta, students would qualify to teach at all level of compulsory education. Due to the great demand in teacher training specialised fields teacher training courses were changed and as from

---

<sup>19</sup> Supply KINDERGARTEN assistants must be in possession of 1 'A' Level or equivalent in any subject (including typing) and a pass in 4 O levels (including Maths, Maltese and English)

<sup>20</sup> Data provided by Directorate.

<sup>21</sup> The first teacher training courses were set up and run by Can Paolo Pullicino in 1850 (Camilleri, 1978). As the Director of Primary Schools, he closed all the village schools from October to December to enable teachers to attend the Model School for lectures and practical training. Pullicino himself instructed teachers in methodology (Camilleri, 2001). At the end of the course, teachers sat for the final examination and obtained certificates. This gradually gave rise to better qualifications of teachers. Teachers in the private sector were also obliged to attend courses and obtain the necessary certification

<sup>22</sup> The Mater Admirabilis Training College for women and St. Michael's Training College for male teachers. were opened in 1944. Initially, training lasted one year. In 1955, a two-year residential training course was inaugurated (Camilleri, 1978).

<sup>23</sup> When the Faculty of Education was established in 1978 students were awarded a B.A (Educ.) degree. This was initially a four-year course but became a five-year course in 1979/80. By 1987, students were applying for a four-year B.Ed. (Hons.) programme.

1999 student teachers had to choose one area of education in which to specialise, i.e. either primary (with options for ECCE and middle years) or secondary education training.

Nowadays, teachers in Malta must hold Bachelor's degree in education and a Master's degree together with a teacher training certificate, or any other professional qualification deemed acceptable by the Council for the Teaching Profession. Head teachers are required to have a minimum of 10 years teaching experience in addition to a Diploma in Administration and Management from the Faculty of Education within the University of Malta to qualify for the post.

As from the scholastic year 2015/16, anyone intending to teach in the Early Years cycle would also be required to follow a Bachelor's degree in ECCE (EURYDICE, 2011a). Teachers also have to hold a teachers' warrant awarded by the Council for the Teaching Profession. Newly qualified teachers must undergo a two-year induction and mentoring programme during their probation period before they could be awarded a permanent teachers' warrant by the Council of the Teaching Profession.

Teachers in State pre-primary, primary and secondary schools are career civil servants employed by the Ministry of Education and Employment on an indefinite contract basis. Some of teachers' working conditions in Malta are characterised by a top-down approach. For example, teachers are required to regularly attend a 3-day continuing professional development session, also known as INSET annually. The Directorates for Education invest substantial amounts of financial and human resources to provide INSET to all teachers in State and Church schools (Bezzina, 2002). Teachers in State schools are obliged to attend three School Professional Development (SPD) sessions annually (once per term). SPDs are usually held after-school hours for approximately two hours each. The theme of the SPD session may be chosen by the College Principal, or Head of School or the teachers themselves, and their attendance in these sessions is remunerated. One afternoon per term (during school hours) each school organises a School Development Plan (SDP) session. A one-day-long SDP session is also organised once a year, during which, teachers audit, review and formulate School Development Plans.

Teachers' working conditions are governed by the Public Service Management Code (PSMC). Their collective agreements are agreed to between the Government and the MUT<sup>24</sup>. Furthermore, teachers are expected to follow the code of ethics<sup>25</sup>

---

<sup>24</sup> Teachers, at all grades and in the State and private sector, in Malta are represented by the MUT, which has the dual role of being a strong trade union and an experienced professional organisation. The MUT has been a prominent contributor in the negotiations on salaries and conditions of work for teachers; helped to enact the Education Act in 1988, gave teaching official recognition as a profession, and helps the continuing professional development of teachers (MUT, 2012).

<sup>25</sup> The code of ethics serves to guide teachers in their professional conduct and stipulates their responsibilities towards their students, their colleagues, parents, the community and the teaching profession in general.

which forms part of the regulations of Chapter 327 of the Laws of Malta, the Education Act.

In the past, Maltese teachers found it challenging to manage teaching and learning without any guidelines as to what was required of them from educational authorities and Malta. Debates about what and how to teach children have been ongoing. Teachers in State schools are restricted because they cannot choose which textbooks to use in the classroom, whilst teachers in private schools were exempt from observing this policy.

## Appendix B

### Pro-environmental models

The purpose of Tables A and B is not to present a maximum number of models but rather these serve to show the evolution in thinking within the field of behaviour change models and help the reader understand the factors that might influence children's behaviour regarding environmental sustainability.

**Table A. An example of PEB research at individual level.**

<b>Source/ Author</b>	<b>Definition of PEB</b>
Stern (2000)	"The extent to which it changes the availability of materials or energy from the environment or alters the structure and dynamics of ecosystems or the biosphere itself" (p. 408).
Stern (2000)	"Actor's standpoint as behavior that is undertaken with the intention to change (normally, to benefit) the environment" (p. 408).
Stern (2000)	"defined behaviorally as the propensity to take actions with pro environmental intent" (p. 411).
Kollmuss & Agyeman (2002)	"Behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world (e.g. minimize resource and energy consumption, use of non-toxic substances, reduce waste production)" (p. 240).
Steg and Vlek (2009)	"Behaviour that harms the environment as little as possible, or even benefits the environment" (p. 309).

**Table B. A summary of behaviour change theories and models, their main characteristics.**

<b>Models</b>	<b>Main characteristics of each theory</b>
<b>Early US linear model of PEB (Kollmuss &amp; Agyeman, 2002)</b>	Linear progression of environmental knowledge leading to environmental awareness, concern and attitudes, which in turn is thought to lead to PEB.
<b>Theory of planned behaviours and Theory of reasoned actions (Ajzen, 1991; Ajzen &amp; Fishbein, 1980; Fishbein &amp; Ajzen, 1975).</b>	Highlights the importance of rational thinking and normative influences and social pressures. Attitudes do not determine behaviour directly rather they influence behaviour intentions in order to shape our actions. Intentions are not only influenced by attitudes but also by social/normative pressures and perceived behaviour control. It adopted a rational decision-making approach and highlighted factors that motivate individuals to engage in PEB with expected financial benefits in areas, such as purchasing energy savers, use of unbleached paper, water use and meat consumption, household recycling, and choice of travel mode.
<b>Integrated model of behaviour prediction (Fishbein &amp; Yzer, 2003)</b>	Strong commitment, or strong intention, to perform a particular behaviour, together with the necessary skills and abilities to perform it, will lead to behaviour change unless there are no environmental constraints to prevent the performance of that behaviour.
<b>Model of ecological behaviour (Fietkau &amp; Kessel, 1981)</b>	Factors that directly or indirectly influence PEB include: 1) possibilities to act pro-environmentally; 2) environmental knowledge; 3) behaviour incentives; 4) perceived consequences of ecological behaviour.
<b>Value-belief-norm theory of pro-environmental behaviour (Stern, Dietz, &amp; Kalof, 1993)</b>	Every individual experiences social orientation, egoistic orientation and biospheric orientation but they manifest these in different ways and strengths. A positive correlation exists between altruistic motives and PEB.
<b>Norm-activation model or Altruism theory (Schwartz, 1977)</b>	Altruistic behaviour increases when an individual becomes aware of other people's suffering and at the same time feels a responsibility to alleviate that suffering. Personal norms (or feelings of moral obligations that individuals hold for themselves) are the only direct determinants of pro-social behaviour patterns.
<b>Pro-environmental behaviour model (Kollmuss &amp; Agyeman, 2002)</b>	Distinguishes between these factors: demographic factors, internal factors (e.g., motivation, environmental knowledge, awareness, values, attitudes, emotion, locus of control, responsibilities and priorities) and external factors (e.g., institutional, economic, social and cultural factors). Emotional involvement is what shapes environmental awareness and attitude.

<b>Structural model of environmental attitudes and behaviours (Grob, 1991, 1995)</b>	Grob's model introduced the notion that personal-philosophical attitudes affect behaviour in the environmental research. This model has five key components: environmental awareness, emotions, personal-philosophy, perceived control, and environmental behaviour.
<b>Reasonable person model – environmentally responsible behaviour (Kaplan, 2000; Kaplan &amp; Kaplan, 2003, 2009)</b>	Linked environmental factors with human behaviour by proposing three key factors shaping human behaviour, including a mental model, a meaningful action, and being effective. It also recognized that information and feelings are inter-related and individuals are more likely to be reasonable in environments that support their informational needs.
<b>Community-based social marketing (McKenzie-Mohr &amp; Smith, 1999, 2011).</b>	Behaviour change can be promoted by focusing on any wanted behaviour rather than on knowledge-intensive processes, by carefully select the behaviour to be promoted; identify the barriers and benefits associated with the selected behaviour; design a strategy that utilises behaviour-change tools to address these barriers and benefits; pilot the strategy with a small segment of a community; and evaluate the impact at the end of the programme.
<b>The model of responsible environmental behaviour (Hines et al. (1987)</b>	Variables associated with responsible environmental behaviour include: Knowledge of issues, knowledge of action strategies, locus of control, attitudes, verbal commitment, and an individual's sense of responsibility.

## Appendix 1

### Observation schedule

**School:** \_\_\_\_\_

**Teacher:** \_\_\_\_\_

**Year:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Time:** From: \_\_\_\_\_ To: \_\_\_\_\_

**Location:** \_\_\_\_\_

**Pupils (number, gender, age):** \_\_\_\_\_

**Subject/s:** \_\_\_\_\_

**Topic:** \_\_\_\_\_

**Time of write up:** \_\_\_\_\_

**Description of the physical environment:** (Photographs of the setting such as walls, halls, notice boards, displays, information for parents, etc, and description of the settings)

**Diagram of class set-up:** (what behaviour does it encourage, permit, discourage)

Name of child	Narrative observation	Reflection comments/Analysis

**Follow-up questions:**

## Appendix 2

### Pilot Study - Information letter for children (English version)

Hello,

My name is Jane.



I am a research student at the Moray House School of Education at the University of Edinburgh, in Scotland.

I want to talk to you about the environmental impacts of climate change. I am also going to talk to your parents, to your head of school, and to your teachers about it too. If you do not know what that means, that's OK because we can talk about it. If you do not want to talk about it, that's OK too, and it's OK to say no. I will show you everything I do and I will talk to your family about it all too.

I want to write down some of your ideas in a book for other people to read and think about. If you do not want these people to know who you are, you will need to choose a pretend name.

See you soon,

Jane



## Ittra ta' nformazzjoni tat-tfal (Maltese version)

Hello,

Jiena Jane.



Jien qed nistudja f' Moray House School of Education, fl –Universita' ta' Edinburgh, fl-Iskozja. Jien nixtieq inkellimkom fuq l-effetti ambjentali tat-tibdil fil-klima. Jien se nkellek ukoll lill-genituri taghkom, lill-ghalliem u lill-kap tal-iskola fuq dan. Jekk intom ma tafux dan il-kliem xi jfisser ma jimpurtax ghax nista' nispjegalkom. Jekk ma tkunux tixtiequ titkellmu mieghi ghiduli u ma jkun gara xejn.

Jien ser nurikom dak kollu li ghandkom taghmlu. Jien nixtieq nikteb ktib dwar l-idejat taghkom u b'hekk xi nies ikunu jistghu jaqraw x' tahsbu. Jekk intom ma tkunux tridu dawn in-nies jafu min intom, tistghu taghzlu isem iehor.

Narakom,

Jane

### Appendix 3

#### **Pilot study - Information letter for co-ordinators/heads of school, play workers/teachers, and parents**

**Project title: Early Years Schools as Community for Sustainability (English version)**

Greetings,

My name is Jane Spiteri. I am a Ph.D. student at the Moray House School of Education at the University of Edinburgh, Scotland. I am researching Education for Sustainable Development, particularly how children (aged 3 to 7) and adults (centre's co-ordinator/head teachers, teachers/play workers, and parents/caregivers) construct their understanding of environmental impacts of climate change. My interest in researching the early years stems from the fact that the first few years of a child's life are considered as the most important years. Research shows that during this time a person's capacity to learn is most receptive and this period is very important for shaping the attitudes, values, behaviours, habits, skills, and identity for life.

It is hoped that this study will help to improve policy and educational programmes in the future. The University of Edinburgh, the Directorate for Quality and Standards in Education in Malta, FES and your centre's co-ordinator have reviewed and approved my research project and have granted me permission to conduct my study in the school. I am approaching you to invite you to take part in this case study research.

I am inviting children, their parents/caregivers, their centre co-ordinator, and their play workers to participate in this research. I will be conducting observations in the classrooms, as well as interviews with the children, the centre's co-ordinator, the play workers and the parents/caregivers. I will listen to children by using pictures as an interviewing technique, as well as drawing activities and I will ask them some questions about the children's drawings. Each interview with the children will take place during normal class time, and on school property. Children's work will be collected, scanned and returned to the children immediately. Semi-structured interviews with adults will be conducted at any time that is convenient for you. All interviews with children and adults will be digitally/audio recorded.

This is absolutely confidential and participation in this study is voluntary, which means that anyone can withdraw from this study at any time. I will adhere to data protection procedures as suggested by the University of Edinburgh, the Directorate for Quality and Standards in Education in Malta and your head of school. You have the option to remain anonymous. The children's participation in this study will have no effect on their curricular assessments or marks.

Thank you for your consideration. Please do not hesitate to contact me with any questions you might have: XXXXXX or XXXXXX.

Yours sincerely,

Jane Spiteri

**Ittra ta' nformazzjoni għall-ko-ordinaturi/kapijiet tal-iskejjel, play workers/ghalliema, u genituri**

**Isem tal-proġett: Skejjel taż- żgħar bhala komunitajiet tas-sostenibilta' (Maltese version)**

Insellmilkom,

Jien Jane Spiteri, studenta tal-Ph.D. f' Moray House School of Education fl-Universita' ta' Edinburgh, fl-Iskozja. Jien qed nistudja Education for Sustainable Development, mat-tfal iż – żgħar ta' bejn 3 u 7 snin. Il-proġett ta' riċerka tiegħi għadu l-għan li jinvestiga il-ħsibijiet tat-tfal żgħar u tal-adulti dwar l-effetti ambjentali tat-tibdil fil-klima. L-ewwel ftit snin tat-tfulija hu ż-żmien l-aktar importanti fil-ħajja tal-bniedem, fejn fih jitrawmu l-valuri u l-imġieba għall-ħajja. Huwa mixtieq li dan l-istudju fil-futur jgħin biex jifasslu programmi u policies addattati kemm għat-tfal u anka għall-adulti.

L-Universita' ta' Edinburgh, id-Direttorat għall-Kwalita' u l-Istandards fi hdan il-Ministeru tal-Edukazzjoni, l-FES u l-ko-ordinatriċi taċ-ċentru raw il-proġett ta' riċerka tiegħi u approvawh. Jien qed nistidinkom biex tiegħu sehem f'dan il-proġett.

Qed nistieden tfal, il-genituri tagħhom jew min jieħu ħsiebhom, il-ko-ordinatriċi taċ-ċentru/kapijiet, u lill-play workers/ghalliema, u lill-genituri biex jipparteċipaw. Jien ser inkun qed nosserva lit-tfal fil-klassi biex insir nafhom u wara nagħmel intervisti mat-tfal u mal-adulti. Fl-intervisti mat-tfal ser ninkludi l-użu ta' stampi, tpingija u stejjer dwar it-tpingija tat-tfal. Ix-xogħol tat-tfal jingabar, jigi skannjat u rritornat lit-tfal immedjatament. L-intervisti mat-tfal ser isiru fil-ħin tal-iskola, filwaqt li daww mal-adulti jsiru f' ħin li jkun tajjeb għalikom. L-intervisti kollha jigu rrekordjati.

Is-sehem tagħkom f'dan il-proġett hija fuq bażi volontarja. Dan ifisser li intom tistgħu tideċiedu li ma tkomplux f'dan il-proġett meta tridu. Jien ser inħares il-kodiċi tal-etika kif stipulate mil-Universita' ta' Edinburgh, mid-Direttorat għall-Kwalita' u l-Istandards fi hdan il-Ministeru tal-Edukazzjoni, mil-FES. Intom u t-tfal għandkom id-

dritt li tibqgħu anonimi. Is-sehem tagħkom u tat-tfal tagħkom bl-ebda mogħod m'hi ser taffetwa l-assessment jew il-marki tat-tfal fiċ-ċentru.

Nirringrazjakom bil-quddiem u jekk għandkom xi mistoqsijiet, tistgħu ċċempluli fuq XXXXXX or XXXXXX.

Dejjem tagħkom,

Jane Spiteri

**Appendix 4****Pilot study - Child's consent form (English version)**

My name is \_\_\_\_\_

My birthday is \_\_\_\_\_

My mother/father/caregiver's name is \_\_\_\_\_

My phone number or contact details are \_\_\_\_\_

Would you like to take part?

Yes \_\_\_\_\_

No \_\_\_\_\_

Would you let me tape our conversations?

Yes \_\_\_\_\_

No \_\_\_\_\_

Will you make some drawings for me?

Yes \_\_\_\_\_

No \_\_\_\_\_

If I change my mind about what we're doing, you will respect my decision.  
I can ask lots of questions if I want to.

I want my research name to be \_\_\_\_\_

Thank you,

Jane

## Formola tal-kunsens ghat-tfal (Maltese version)

Jien jisimni \_\_\_\_\_

Jien twelidt f' \_\_\_\_\_

Ommi/Missieri/Min jiehu hsiebi jismu/ha \_\_\_\_\_

In-numru tat-telefon huwa \_\_\_\_\_

Tixtieq tiehu sehem?

Iva \_\_\_\_\_

Le \_\_\_\_\_

Trid li dak li tghid jigi rrekordjat?

Iva \_\_\_\_\_

Le \_\_\_\_\_

Tixtieq tpengi tpengili xi haga?

Iva \_\_\_\_\_

Le \_\_\_\_\_

Jekk inbiddel fehmti dwar is-sehem tieghi, ghandi dritt nieqaf. Ghandi dritt ukoll nistaqsi hafna mistoqsijiet.

Jien nixtieq li ismi jidher bhala \_\_\_\_\_

Grazzi,

Jane

## Appendix 5

### **Pilot study - Co-ordinator/head teacher and teachers'/play workers' consent form (English version)**

**Please see leaflet for details of the research. If you have any questions, please ask me and I will be happy to answer.**

I am Jane Spiteri, a Ph.D. student at the Moray House School of Education at the University of Edinburgh, Scotland. I am researching the perceptions of environmental impacts of climate change of children (aged 3 – 7), their centre co-ordinator/head teachers and play workers/teachers. I would be most grateful if you are willing to be involved in this study and can confirm this by reading the information below and after you have understood it, please sign below.

1. I have been given, and have understood, an explanation of this research project and I have had the opportunity to ask questions and have them answered to my satisfaction, before being interviewed.
2. I understand that I may withdraw myself or my child (or information given by me or by my child) from this study at any time and that my data will be immediately destroyed.
3. I understand that any information I provide will be kept confidential to the researcher, and her supervisors and the published results will not attribute any opinions to me by name.
4. I am willing to have my opinions published under my name or under a pseudonym, according to my instructions to the researcher.
5. I understand the information I have provided will be used only for this research project, which is part of a Ph.D. and to inform academic articles and conference papers related to it. Any further use will require my written consent.
6. I am willing to take part and be interviewed in this research project.
7. I understand that the interview is being digitally recorded/audio taped.

Please complete and sign this form where appropriate:

Do you wish to participate? Yes \_\_\_\_\_ No \_\_\_\_\_



If you answered yes to the above question, how do you wish to be interviewed?

In person \_\_\_\_\_ By phone \_\_\_\_\_

Do you wish to receive results of this research? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish to remain anonymous? Yes \_\_\_\_\_ No \_\_\_\_\_

If you do not wish to remain anonymous write down how you wish your name appears in the study \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name and surname: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Thanks,

Jane

Please return this form by: \_\_\_\_\_

## Formula ghas-sehem tal-ko-ordinaturi/kapijiet, l-play workers/ghalliema (Maltese version)

**Jekk jogħġbokkom irreferu għall-ittra ta' nformazzjoni dwar dan il-proġett u jekk għandkom xi mistoqsijiet, tiddejqux tistaqsuni.**

Jien Jane Spiteri, studenta tal-Ph.D. f' Moray House School of Education fl-Universita' ta' Edinburgh, fl-Iskozja. Il-proġett ta' riċerka tiegħi għadu l-għan li jinvestiga il-ħsibijiet tat-tfal iż-żgħar (bejn 3 u 7 snin), u tal-ko-ordinaturi/kapijiet tal-iskola, u tal-play workers/ghalliema tagħhom dwar l-effetti tat-tibdil fil-klima. Napprezza l-partecipazzjoni tagħkom u ta' wliedhom u nitlobkom taqraw hawn taht.

1. Jien ingħatajt spjegazzjoni dwar dan il-proġett u f'himt x'ser jiġri waqt dan il-proġett. Ingħatajt ukoll l-opportunita' li nistaqsi xi mistoqsijiet u dawn ġew imwiegħba sewwa lili qabel ma bdiet l-intervista.
2. Jiena u t-tifel/tifla tiegħi nafu li nistgħu nirrifjuta milli niehdu sehem f'dan il-proġett meta nixtiequ aħna u kull informazzjoni miġbura minn għandna tiġi imħassra mil-ewwel.
3. Jiena naf li kull informazzjoni dwari jew dwar it-tifel/tifla tiegħi ser tinzamm b'mod kunfidenzjali mil-istudenta u ser tintuża biss mal-ghalliema tagħha u kull informazzjoni dwar dan il-proġett qatt m'hi ser tirreferi għalija jew għat-tifel/tifla tiegħi direttament.
4. Jien naċċetta li l-opinjonijiet tiegħi jiġu ppublikati jew f'ismi jew f'isem fittizju, skond ix-xewqa tiegħi.
5. L-informazzjoni li jien għaddejt lill-istudenta ser tintuża biss għat-teżi tal-Ph.D. jew f'xi artikli relatati mal-Ph.D. Kull użu ieħor jeħtieġ il-permess tiegħi bil-miktub.
6. Jien nixtieq li niehdu sehem fl-intervista f'dan il-proġett.
7. Jiena naf li l-intervisti ser jiġu rrekordjati.

Jekk jogħġbok imla' hawn taht:

Tixtieq tiegħu sehem? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk ir-risposta tiegħi kienet iva, kif tixtieq tkun intervistat/a?

Wiċċ 'imb wiċċ \_\_\_\_\_ Bit-telefon \_\_\_\_\_

Tixtieq tirċievi r-riżultati ta' dan il- proġett? Iva \_\_\_\_\_ Le \_\_\_\_\_

Tixtieq tibqa' anonimu/a? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk \_\_\_\_\_ le, \_\_\_\_\_ x'isem \_\_\_\_\_ tixtieq \_\_\_\_\_ li \_\_\_\_\_ jkollok:

\_\_\_\_\_

Firma: \_\_\_\_\_ Data: \_\_\_\_\_

Isem u kunjom: \_\_\_\_\_

Telefon: \_\_\_\_\_

Email: \_\_\_\_\_

Grazzi,

Jane

Jekk jogħġbokom ibagħtu din il-formola lura l-iskola sal: \_\_\_\_\_

## Appendix 6

### Pilot study - Parent/Caregiver's consent form (English version)

**Please see leaflet for details of the research. If you have any questions, please ask me and I will be happy to answer.**

I am Jane Spiteri, a Ph.D. student at the Moray House School of Education at the University of Edinburgh, Scotland. I am researching the perceptions of environmental impacts of climate change of children (aged 3-7), their parents, teachers and heads of school. I would be most grateful if you are willing to be involved in this study and can confirm this by reading the information below and after you have understood it, please sign below.

1. I have been given, and have understood, an explanation of this research project and I have had the opportunity to ask questions and have them answered to my satisfaction, before being interviewed.
2. I understand that I may withdraw myself or my child (or information given by me or by my child) from this study at any time and that my data will be immediately destroyed.
3. I understand that any information I provide will be kept confidential to the researcher, and her supervisors and the published results will not attribute any opinions to me by name.
4. I am willing to have my opinions published under my name or under a pseudonym, according to my instructions to the researcher.
5. I understand the information I have provided will be used only for this research project, which is part of a Ph.D. and to inform academic articles and conference papers. Any further use will require my written consent.
6. I am willing to take part and be interviewed in this research project.
7. I understand that the interview is being digitally recorded/audio taped.

Please complete and sign this form where appropriate:

Do you wish to participate? Yes \_\_\_\_\_ No \_\_\_\_\_

If you answered yes to the above question, how do you wish to be interviewed?

In person \_\_\_\_\_ By phone \_\_\_\_\_

Do you wish to receive results of this research? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish to remain anonymous? Yes \_\_\_\_\_ No \_\_\_\_\_

If you do not wish to remain anonymous write down how you wish your name appears in the study \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name and surname: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

**Please complete and sign this form ONLY IF YOU WANT YOUR CHILD TO PARTICIPATE in this study.**

I \_\_\_\_\_ (name of parent/caregiver

**agree** for my child \_\_\_\_\_ (name of child)

to participate and be observed and interviewed in this study.

I understand that my child will be asked to discuss his or her ideas and views of the environmental impacts of climate change during class time. I also understand that my child may volunteer to participate in one-on-one interviews during normal school time on school property. My child may also provide the researcher a drawing that will be returned to my child after it has been scanned by the researcher, and that is entirely voluntary and will not be used for assessment purposes.

A summary of the findings will be sent to me by my child's school, and I may request a copy of the thesis in full.

Do you wish to receive results of this research?

Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish your child to remain anonymous?

Yes \_\_\_\_\_ No \_\_\_\_\_

If you do not wish your child to remain anonymous, please write down how would you like your child's name to appear in this research \_\_\_\_\_

Signature of parent/caregiver: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Thanks,

Jane Spiteri

Please return this form

by: \_\_\_\_\_

### Formula ghas-sehem tal-genituri (Maltese version)

**Jekk jogħġbokom irreferu għall-ittra ta' nformazzjoni dwar dan il-proġett u jekk għandkom xi mistoqsijiet, tiddejqux tistaqsuni.**

Jien Jane Spiteri, studenta tal-Ph.D. f' Moray House School of Education fl-Universita' ta' Edinburgh, fl-Iskozja. Il-proġett ta' riċerka tiegħi għadu l-għan li jinvestiga il-ħsibijiet tat-tfal żgħar (bejn 3 u 7 snin) u l-genituri, l-ko-ordinaturi/kapijiet tal-iskola, u l-play workers/għalliema tagħhom dwar l-effetti tat-tibdil fil-klima. Napprezza l-partecipazzjoni tagħkom u ta' wliedhom u nitlobkom taqraw hawn taħt.

1. Jien ingħatajt spjegazzjoni dwar dan il-proġett u fhimt x'ser jigri waqt dan il-proġett. Ingħatajt ukoll l-oportunita' li nistaqsi xi mistoqsijiet u dawn ġew imwieġba sewwa lili qabel ma bdiet l-intervista.
2. Jiena u t-tifel/tifla tiegħi nafu li nistgħu nirrifjuta milli nieħdu sehem f'dan il-proġett meta nixtiequ aħna u kull informazzjoni miġbura minn għandna tiġi imħassra mil-ewwel.
3. Jiena naf li kull informazzjoni dwari jew dwar it-tifel/tifla tiegħi ser tinżamm b'mod kunfidenzjali mil-istudenta u ser tintuża biss mal-għalliema tagħha u kull informazzjoni dwar dan il-proġett qatt m'hi ser tirreferi għalija jew għat-tifel/tifla tiegħi direttament.
4. Jien naċċetta li l-opinjonijiet tiegħi jiġu ppublikati jew f'ismi jew f'isem fittizju, skond ix-xewqa tiegħi.
5. L-informazzjoni li jien għaddejt lill-istudenta ser tintuża biss għat-teżi tal-Ph.D. jew f'xi artikli relatati mal-Ph.D. Kull użu ieħor jeħtieġ il-permess tiegħi bil-miktub.
6. Jien nixtieq li nieħu sehem fl-intervista f'dan il-proġett.
7. Jiena naf li l-intervisti ser jiġu rrekordjati.

Jekk jogħġbok imla' hawn taħt:

Tixtieq tiegħu sehem? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk ir-risposta tiegħi kienet iva, kif tixtieq tkun intervistat/a?

Wiċċ 'imb wiċċ \_\_\_\_\_ Bit-telefon \_\_\_\_\_

Tixtieq tirċievi r-riżultati ta' dan il- proġett? Iva \_\_\_\_\_ Le \_\_\_\_\_

Tixtieq tibqa' anonimu/a? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk le, x'isem tixtieq li jkollok: \_\_\_\_\_

Firma: \_\_\_\_\_ Data: \_\_\_\_\_

Isem u kunjom: \_\_\_\_\_

Telefon: \_\_\_\_\_

Email: \_\_\_\_\_

### **Kunsens tal-ġenituri**

Jekk jogħġbok imla' hawn taht u rritorna l-formula sal-18 ta' Dicembru, 2012.

Bhala ġenitur, tixtieq tiegħu sehem f'dan il-proġett ta' ricerka?

Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk ir-risposta tiegħek kienet iva, kif tixtieq tkun intervistat/a?

Wiċċ 'imb wiċċ \_\_\_\_\_ Bit-telefon \_\_\_\_\_

Tixtieq tirċievi r-riżultati ta' dan il- proġett permezz tal-email?

Iva \_\_\_\_\_ Le \_\_\_\_\_

Tixtieq jidher ismek fir-rapport dwar dan il-proġett? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk iva, x'inhu ismek? \_\_\_\_\_

Jekk le, kif tixtieq li ismek jidher? \_\_\_\_\_



***Imla' BISS JEKK TIXTIEQ li t-tifel/tifla tieghek tiehu sehem f' dan il-proġett***

Jien \_\_\_\_\_ (isem il-  
 ġenitur jew min jieħu ħsieb it-tifel/tifla) **nixtieq** li t-tifel/tifla tiegħi  
 \_\_\_\_\_ (isem tat-tifel/tifla) li  
 qiegħed/qegħda fil-klassi \_\_\_\_\_ tkun osservat/a u jkun/tkun  
 intervistat/a għal dan il-proġett ta' ricerka.

Tixtieq li t-tifel/tifla tiegħek jidher ismu/isimha? Iva \_\_\_\_\_ Le \_\_\_\_\_  
 X'isem tixtieq li t-tifel/tifla tiegħek tidher bih fir-rapport finali ta' dan il-  
 proġett \_\_\_\_\_

Firma: \_\_\_\_\_ Data: \_\_\_\_\_

Nru tat-telefon: \_\_\_\_\_

Indirizz tal-email: \_\_\_\_\_

Grazzi,

Jane

Jekk jogħġbokom ibagħtu din il-formola lura l-iskola sal: \_\_\_\_\_

## Appendix 7

### Children's assent and the research explained in pictures



Picture 1  
**Who am I?**



Picture 2

**I write a book.**



Picture 3

**I listen to your ideas.**



Picture 4

**We talk about photographs.**



Picture 5

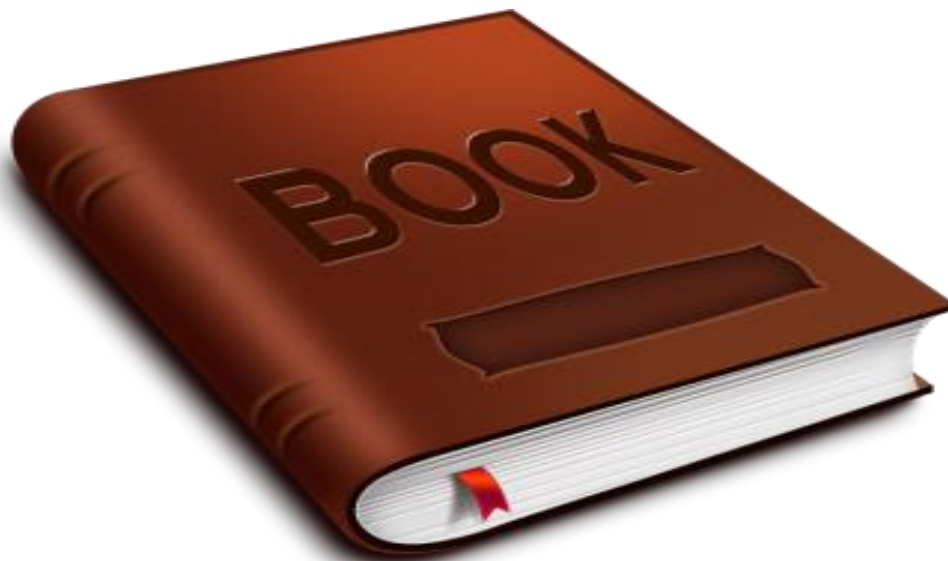
**Draw or paint pictures and we talk about them.**



Picture 6  
**We use a puppet.**



Picture 7  
**We use digital and tape recorders.**



Picture 8

**I will write a book about your thoughts and ideas. I will share these with your teachers, parents/caregivers and people from my school to make them think about what you think. I won't tell anyone who you are if you don't want me too. Only if I get worried or if you are not safe, I will tell your teacher about it.**

# Yes

# No

Picture 9

**Yes and No. It's OK to say no!**



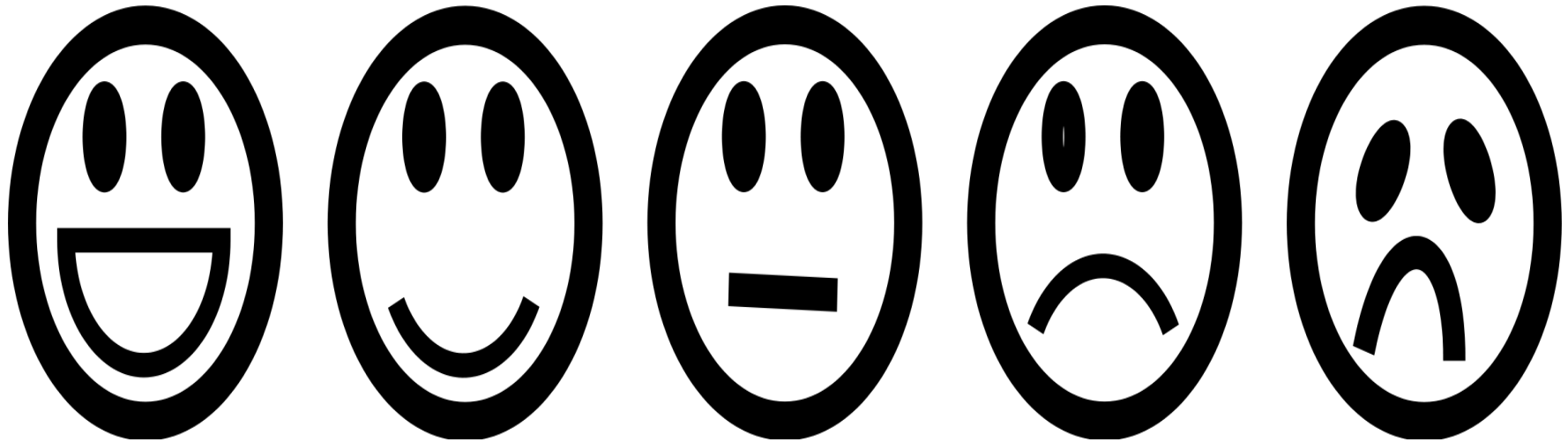


Picture 10

**If you want me to stop writing, tell me or your teacher.**

## Appendix 8

### Smiley faces





## Appendix 9

### Question mark and stop cards



### Question mark card



Stop card

## Appendix 10

### Pilot study – Children’s conversational interviews guides

#### Photographs interpretation

**Name:**

\_\_\_\_\_

**Age:**

\_\_\_\_\_

**Date:**

**Class:**

\_\_\_\_\_

**Time of interview:**

**Duration:**

\_\_\_\_\_

I am really interested in listening to your views and experiences regarding young children’s perceptions of the environmental impacts of climate change, so this is what this interview is all about. I am interested in your ideas. I would like to remind you that your participation in this study is completely voluntary. You may decide to not begin or to stop the interview at any time. (Pause for any response) I will be taking some notes as we talk and I will be recording our conversation as well. Soon after the interview I hope to have a transcript available. I would like to run it by you for a clarity and accuracy check. (Pause for any response) ... The interview will not connect your name to the reporting. Only I will have a document that links individuals to the interviews.

Before we start could I just check with you if it is OK to use a tape recorder and a digital recorder to record our conversation? I would like to ensure that whatever we say will remain confidential and anonymous.

Question you can ask to clarify if necessary:

*Could you say some more about that?*

*What do you mean by that?*

*Could you say something more about that?*

*Do you have further examples of this?*

*When you say ..., do you think ...?*

*Are you sure that this is correct?*

Show the first photograph:

1. Can you talk to me about this picture? (Verbal prompt)
2. Anything else you can see in the picture?
3. What would it feel like in this place?—hot, cold, etc – climate
4. Where might this place be?
5. What do you think lives here?—animals, birds, people, etc
6. Tell me what you know about this? Tell me more.
7. What would happen if the weather changed here? If it became warmer/colder, would it still look the same?

- Show them the other matching picture:

8. What do you see now?
9. What do you think happened?
10. What else do you know about this?
11. How have you do you know?
12. Do you think we can do something to stop/help this from happening? Can you give me some examples?
13. Have you ever heard of climate change? What do you think it means?

Follow the above procedure for the rest of the photographs.

14. Would you like to draw something about the environmental impacts of climate change for me please?

### **Drawings interpretations**

**Name:** \_\_\_\_\_

**Age:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Class:** \_\_\_\_\_

**Time of interview:** \_\_\_\_\_

**Duration:** \_\_\_\_\_

Let's talk about your drawing.

Prompt:

1. Please describe your drawings.
2. What do you think ... means?
3. Anything else?

Probes:

4. Where have you seen this?
5. How did this happen? Why?
6. How do you feel about it? Why?
7. Who told/taught you that?

Integral to the interviews will be the following:

1. That's interesting. Why do you say that?
2. Is there anything else you'd like to tell me about climate change or about your drawing?

Wrap up as necessary.

## Appendix 11

### Pilot study - Interview guide for co-ordinators/head teachers, and play workers/teachers

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Year: \_\_\_\_\_

Time of interview: \_\_\_\_\_

Duration: \_\_\_\_\_

I am really interested in listening to your views and experiences regarding young children's perceptions of the environmental impacts of climate change, so this is what this interview is all about. I am interested in your ideas. I would like to remind you that your participation in this study is completely voluntary. You may decide to not begin or to stop the interview at any time. (Pause for any response) I will be taking some notes as we talk and I will be recording our conversation as well. Soon after the interview I hope to have a transcript available. I would like to run it by you for a clarity and accuracy check. (Pause for any response) ... The interview will not connect your name to the reporting. Only I will have a document that links individuals to the interviews.

Before we start could I just check with you if it is OK to use a tape recorder and a digital recorder to record our conversation? I would like to ensure that whatever we say will remain confidential and anonymous.

*Questions for pushing forward:*

*Could you say some more about that?*

*What do you mean by that?*

*Could you say something more about that?*

*Do you have further examples of this?*

*When you say ..., do you think ...?*

*Are you sure that this is correct?*

What I hear you saying is.....?

It sounds to me that you.....?

Is this correct?

### Description of the setting

### Demographic/Background Questions

1. Could you briefly describe the setting (e.g. the area the school is in, the children and their families, etc)
2. How many years have you been teaching in the early childhood sector?
3. Which qualification do you hold in teaching?

### Educational ideals and philosophy

4. In your view, what is the purpose of education?

### **Knowledge Questions**

5. What do think
  - a) Greenhouse gases are?
  - b) Global warming is?
  - c) Carbon footprint is?
  - d) Climate change mean to you?
6. What do you think causes of climate change?
7. What do you think are the effects of climate change on humans and nature?
8. How do you think climate change can be stopped or minimised?

### **Experience/Behaviour Questions**

9. How did you learn about climate change?

### **Curriculum design**

10. How is the curriculum designed and developed to incorporate ideas about climate change?
11. Do you consciously incorporate any teaching about climate change? Why? Why not? How?
12. Is there certain knowledge about climate change that you feel is important for children to learn?
13. What, in your opinion, are the successes, failures, obstacles, and needs in incorporating climate change education in your programme?

### **Opinion Questions**

14. What do you think young children know about climate change?
15. How do you think they learned about it?
16. Have you had any discussions with your children in class about climate change? How did these go?
17. What is your opinion about teaching about climate change in early childhood education?
18. How would you teach children about climate change in early childhood classroom? What influences your decision to do so?
19. What do you think supports and what hinders the teaching about climate change in early childhood education?
20. How do children's understandings of climate change from home affect your school or lessons?

### **Resources**

21. What kind of resources do you think as a teacher might help you to promote climate change awareness in the early years?
22. In your opinion how can schools effectively promote awareness of climate change in the early years?

### **Policy**

23. Are you aware of policies/strategies that deal with issues of climate change in Malta? How are these relevant to early childhood education? How might these policies/strategies impact on your work?
24. Do you have a specific policy in your school to promote awareness of climate change?

**Behaviour questions**

25. What do you think you're doing or you have done that causes climate change?
26. What are you doing to help stop climate change? Why? Why not? How?

**Feedback**

27. Is there anything you would like to ask me?

Well it looks like our time is up. I really appreciate your participation in this project. I hope to have a transcript available in the next few weeks. If you are interested, I would like for you to review it for accuracy and clarity. I do want to reassure you that the interview will not connect your name to the reporting. Wrap up conversations as needed.



## Appendix 12

### Pilot study - Interview guide for parents

Name of parent: \_\_\_\_\_

Name of child and age: \_\_\_\_\_

Date: \_\_\_\_\_

Year: \_\_\_\_\_

Time of interview: \_\_\_\_\_

Duration: \_\_\_\_\_

I am really interested in listening to your views and experiences regarding young children's perceptions of the environmental impacts of climate change, so this is what this interview is all about. I am interested in your ideas. I would like to remind you that your participation in this study is completely voluntary. You may decide to not begin or to stop the interview at any time. (Pause for any response) I will be taking some notes as we talk and I will be recording our conversation as well. Soon after the interview I hope to have a transcript available. I would like to run it by you for a clarity and accuracy check. (Pause for any response) ... The interview will not connect your name to the reporting. Only I will have a document that links individuals to the interviews.

Before we start could I just check with you if it is OK to use a tape recorder and a digital recorder to record our conversation? I would like to ensure that whatever we say will remain confidential and anonymous.

Question you can ask to clarify if necessary:

*Could you say some more about that?*

*What do you mean by that?*

*Could you say something more about that?*

*Do you have further examples of this?*

*When you say ..., do you think ...?*

*Are you sure that this is correct?*

### Demographic questions

1. Where do you live?
2. What is your occupation?
3. What level of education do you have?

### Educational ideals and philosophy

4. In your view, what is the purpose of education?

### Knowledge Questions

5. What do think:
  - e) Greenhouse gases are?
  - f) Global warming is?

- g) Carbon footprint is?
- h) Climate change means to you?
- 6. What do you think causes of climate change? How does it happen?
- 7. What do you think are the effects of climate change on humans and nature?
- 8. How do you think climate change can be stopped or minimised?

### **Experience Question**

- 9. How did you learn about climate change?

### **Opinion Questions**

- 10. What do you think your child knows about climate change?
- 11. How do you think she/he learned about it?
- 12. Have you had any discussions with your child about climate change? How did these go?
- 13. What is your opinion about teaching about climate change in early childhood education?
- 14. How would you teach your child about climate change at home? What influences your decision to do so?
- 15. What do you think supports and what hinders the teaching about climate change at home?
- 16. How do your child's understandings of climate change from school effect you at home?

### **Resources**

- 17. What kind of resources do you think as a parent might help you to promote climate change awareness to your child?
- 18. In your opinion how can schools effectively promote awareness of climate change in the early years?

### **Policy**

- 19. Are you aware of policies/strategies that deal with issues of climate change in Malta? How are these relevant to early childhood education? How might these policies/strategies impact you as a parent?
- 20. Do you have a specific policy in your school to promote awareness of climate change?

### **Behaviour questions**

- 21. What do you think you're doing or anything you have done that causes climate change?
- 22. What are you doing to help stop climate change? Why? Why not? How?

### **Feedback**

- 23. Is there anything you would like to ask me?

Well it looks like our time is up. I really appreciate your participation in this project. I hope to have a transcript available in the next few weeks. If you are interested, I

would like for you to review it for accuracy and clarity. I do want to reassure you that the interview will not connect your name to the reporting. Wrap up conversations as needed.

## Appendix 13

### Pilot Study - Photographs for photograph interpretation session

Photographs used during the pilot study for children's photograph interpretation session.



Source: <http://www.rosssea.info/glaciers.html>



Source: <http://triggerpit.com/2011/02/07/incredible-icebergs-37-pics/>



Source: <http://www.nature.com/news/2009/090305/full/news.2009.136.html>



Source: <http://news.discovery.com/earth/a-grim-future-for-tropical-forests.htm>





Source: [http://www.noaanews.noaa.gov/stories2008/20080416\\_coralclimate.html](http://www.noaanews.noaa.gov/stories2008/20080416_coralclimate.html)



Source: [http://www.noaanews.noaa.gov/stories2008/20080416\\_coralclimate.html](http://www.noaanews.noaa.gov/stories2008/20080416_coralclimate.html)



Source: Flooding in B'Kara Malta, photograph provided by a friend.



Source: <http://climatehistory.com.au/2011/08/03/big-dry-worst-drought-since-european-settlement/>

## Appendix 14

### Main study - Information letters for head teachers, teachers and parents

**Project title: Early Years Schools as Community for Sustainability (English version)**

Greetings,

My name is Jane Spiteri and I am a Ph.D. student at the Moray House School of Education at the University of Edinburgh, Scotland. As part of my Ph.D., I am interested in researching how children (aged 3 to 7) and adults (head of school, teachers and parents) perceive environmental sustainability. My interest in researching the early years stems from the fact that the first few years of a child's life are considered as the most important years because during this time a person's capacity to learn is most receptive and this period is very important for shaping the attitudes, values, behaviours, habits, skills, and identity for life.

During this study, I would like to listen to children's and adults' views about environmental sustainability, in order to understand. This study will help to improve policy and educational programmes in the future. The University of Edinburgh, the Directorate for Quality and Standards in Education in Malta and your head of school have reviewed and approved my research project, and have granted me permission to conduct my study in your child's school. I am approaching you to invite you to take part in this case study research.

I am inviting children from KG1 to Yr 2, as well as their parents, their teachers and the head of school to participate in this research. I will be conducting observations in the classrooms, as well as interviews with the children and adults. I will listen to children by using pictures as an interviewing technique, as well as drawing activities and I will ask them some questions about the pictures and about their drawings. Interviews with children will be conducted during normal school hours and on school property. Children's work will be collected, scanned and returned. I will be



conducting semi-structured interviews with adults too. All interviews will be digitally or audio recorded.

This is absolutely confidential and participation in this study is voluntary, which means that anyone can withdraw from this study at any time. I will adhere to data protection procedures as suggested by the University of Edinburgh, the Directorate for Quality and Standards in Education in Malta and your head of school. You have the option to remain anonymous. The children's participation in this study will have no effect on their curricular assessments or marks.

Thank you for your consideration. Please do not hesitate to contact me with any questions you may have: XXXXXX or XXXXXX.

Yours sincerely,

Jane Spiteri

**Isem tal-proġett: Skejjel taż- żghar bhala komunitajiet tas-sostenibilta’ (Maltese version)**

Insellmilkom,

Jien Jane Spiteri, studenta tal-Ph.D. f’ Moray House School of Education fil-Universita’ ta’ Edinburgh, fl-Iskozja. Jien qed nistudja Education for Sustainable Development, mat-tfal żghar (bejn 3 u 7 snin). Il-proġett ta’ riċerka tiegħi għadu l-għan li jinvestiga il-ħsibijiet tat-tfal żghar u tal-adulti (genituri, għalliema u kapijiet ta’ skola) dwar is-sostenibilita’ ambjentali. L-interess tiegħi f’dan il-qasam beda mil-fatt li r-riċerka turi li dan iż-żmien huwa l-aktar importanti fil-ħajja tal-bniedem, fejn fih jitrawmu l-valuri u l-imġieba għall-ħajja. Huwa mixtieq lid an l-istudju fil-futur jgħin biex jitfasslu programmi u policies addattati kemm għat-tfal u anka għall-adulti.

L-Universita’ ta’ Edinburgh, id-Direttorat għall-Kwalita’ u l-Istandards fi hdan il-Ministeru tal-Edukazzjoni, u l-kap tal-iskola raw il-proġett ta’ riċerka tiegħi u approvawh. Jien qed nistidinkom biex intom flimkien mat-tfal tagħkom tiegħu sehem f’dan il-proġett.

Qed nistieden tfal, il-genituri tagħhom jew min jiegħu ħsiebhom, il-kapijiet tal-iskola, u lill-għalliema tagħhom biex jipparteċipaw. Jien ser inkun qed nosserva lit-tfal fil-klassi biex insir nafhom u wara nagħmel intervisti mat-tfal u mal-adulti. Fl-intervisti mat-tfal ser ninkludi l-użu ta’ stampi u tpingija. Ix-xogħol tat-tfal jingabar, jigi skennjat u rritornat lit-tfal. L-intervisti mat-tfal ser isiru fil-ħin tal-iskola, filwaqt li daww mal-adulti jsiru f’ ħin li jkun tajjeb għalikom. L-intervisti kollha jigu rrekordjati.

Is-sehem tagħkom f’dan il-proġett hija fuq bażi volontarja. Dan ifisser li intom tistgħu tideċiedu li ma tkomplux f’dan il-proġett meta tridu. Jien ser inħares il-kodiċi tal-etika kif stipulate mil-Universita’ ta’ Edinburgh u mid-Direttorat għall-Kwalita’ u l-Istandards fi hdan il-Ministeru tal-Edukazzjoni. Intom u t-tfal għandkom id-dritt li tibqgħu anonimi. Is-sehem tagħkom u tat-tfal tagħkom bl-ebda mogħod m’hi ser taffetwa l-assessment jew il-marki tat-tfal fiċ-ċentru. Nirringrazzjakom bil-quddiem u jekk għandkom xi mistoqsijiet, tistgħu ċċempluli fuq XXXXXX or XXXXXX.

Dejjem taghkom,  
Jane Spiteri

## Appendix 15

### Main study - Parent/Caregiver's consent form (English version)

**Please see leaflet for details of the research. If you have any questions, please ask me and I will be happy to answer.**

I am Jane Spiteri, a Ph.D. student at the Moray House School of Education at the University of Edinburgh, Scotland. I wish to conduct a study to explore the perceptions of environmental sustainability of young children, their parents, teachers and heads of school. In order to conduct this research I have applied for and been granted ethical clearance by the University of Edinburgh in Scotland, the the Directorate for Quality and Standards in Education in Malta and your head of school. I would be most grateful if you are willing to be involved in this study and can confirm this by reading the information below and after you have understood it, please sign below.

1. I have been given, and have understood, an explanation of this research project and I have had the opportunity to ask questions and have them answered to my satisfaction, before being interviewed.
2. I understand that I may withdraw myself or my child (or information given by me or by my child) from this study at any time and that my data will be immediately destroyed.
3. I understand that any information I provide will be kept confidential to the researcher, and her supervisors and the published results will not attribute any opinions to me by name.
4. I am willing to have my opinions published under my name or under a pseudonym, according to my instructions to the researcher.
5. I understand the information I have provided will be used only for this research project, which is part of a Ph.D. and to inform academic articles and conference papers. Any further use will require my written consent.
6. I am willing to take part and be interviewed in this research project.
7. I understand that the interview is being digitally recorded/audio taped.

Please complete and sign this form where appropriate:

Do you wish to participate? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish to receive results of this research? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish to remain anonymous? Yes \_\_\_\_\_ No \_\_\_\_\_

If you do not wish to remain anonymous, write down how you wish your name appears in the study \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name and surname: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

**Please complete and sign this form ONLY IF YOU WANT YOUR CHILD TO PARTICIPATE in this study.**

I \_\_\_\_\_ (name of parent/caregiver)  
**agree** for my child \_\_\_\_\_ (name of child)  
 to participate and be observed and interviewed in this study.

I understand that my child will be asked to discuss his or her ideas and views of environmental sustainability during class time. I also understand that my child may volunteer to participate in one-on-one interviews during normal school time on school property. My child may also provide the researcher a drawing that will be kept by the researcher, and that is entirely voluntary and will not be used for assessment purposes.

A summary of the findings will be sent to me by my child's school, and I may request a copy of the thesis in full.

Are you happy to include your child in photos in this research?

Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish to receive results of this research?

Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish your child to remain anonymous?

Yes \_\_\_\_\_ No \_\_\_\_\_

If you do not wish your child to remain anonymous, please write down how would you like your child's name to appear in this research \_\_\_\_\_

Signature of parent/caregiver: \_\_\_\_\_

Date: \_\_\_\_\_

Name and surname of parent/caregiver: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Please return this form by \_\_\_\_\_

Thanks,

Jane Spiteri

**Formula ghas-sehem tal-genituri (Maltese version)**

**Jekk joghġobkom irreferu għall-ittra ta' nformazzjoni dwar dan il-proġett u jekk għandkom xi mistoqsijiet, tiddejqux tistaqsuni.**

Jien Jane Spiteri, studenta tal-Ph.D. f' Moray House School of Education fl-Universita' ta' Edinburgh fl-Iskozja. Il-proġett ta' riċerka tiegħi għadu l-għan li jinvestiga il-ħsibijiet tat-tfal żgħar (bejn 3 u 7 snin) u tal-adulti li jieħdu ħsiebhom (genituri, kapijiet ta'skola u għalliema), dwar is-sostenibiltà tal-amnjbent. Napprezza l-parteeipazzjoni tagħkom u ta' wliedhom u nitlobkom taqraw hawn taħt.

1. Jien ingħatajt spjegazzjoni dwar dan il-proġett u fhimt x'ser jiġri waqt dan il-proġett. Ingħatajt ukoll l-oportunita' li nistaqsi xi mistoqsijiet u dawn ġew imwieġba sewwa lili qabel ma bdiet l-intervista.
2. Jiena u t-tifel/tifla tiegħi nafu li nistgħu nirrifjuta milli nieħdu sehem f'dan il-proġett meta nixtiequ aħna u kull informazzjoni miġbura minn għandna tiġi imħassra mil-ewwel.
3. Jiena naf li kull informazzjoni dwari jew dwar it-tifel/tifla tiegħi ser tinzamm b'mod kunfidenzjali mil-istudenta u ser tintuża biss mal-għalliema tagħha u kull informazzjoni dwar dan il-proġett qatt m'hi ser tirreferi għalija jew għat-tifel/tifla tiegħi direttament.
4. Jien naċċetta li l-opinjonijiet tiegħi jiġu ppublikati jew f'ismi jew f'isem fittizju, skond ix-xewqa tiegħi.
5. L-informazzjoni li jien għaddejt lill-istudenta ser tintuża biss għat-teżi tal-Ph.D. jew f'xi artikli relatati mal-Ph.D. Kull użu ieħor jeħtieġ il-permess tiegħi bil-miktub.
6. Jien nixtieq li nieħu sehem fl-intervista f'dan il-proġett.
7. Jiena naf li l-intervisti ser jiġu rrekordjati.

Jekk joghġbok imla' hawn taħt:

Tixtieq tieħu sehem? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk ir-risposta tiegħi kienet iva, kif tixtieq tkun intervistat/a?

Wiċċ 'imb wiċċ \_\_\_\_\_ Bit-telefon \_\_\_\_\_

Tixtieq tirċievi r-riżultati ta' dan il- proġett? Iva \_\_\_\_\_ Le \_\_\_\_\_

Tixtieq tibqa' anonimu/a? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk le, x'isem tixtieq li jkollok: \_\_\_\_\_

Firma: \_\_\_\_\_ Data: \_\_\_\_\_

Isem u kunjom: \_\_\_\_\_

Telefon: \_\_\_\_\_

Email: \_\_\_\_\_

### **Kunsens tal-ġenituri**

Jekk jogħġbok imla' hawn taht u rritorna l-formula sal-18 ta' Dicembru, 2012.

Bħala ġenitur, tixtieq tiegħu sehem f'dan il-proġett ta' ricerka?

Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk ir-risposta tiegħek kienet iva, kif tixtieq tkun intervistat/a?

Wiċċ 'imb wiċċ \_\_\_\_\_ Bit-telefon \_\_\_\_\_

Tixtieq tirċievi r-riżultati ta' dan il- proġett permezz tal-email?

Iva \_\_\_\_\_ Le \_\_\_\_\_

Tixtieq jidher ismek fir-rapport dwar dan il-proġett? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk iva, x'inhu ismek? \_\_\_\_\_

Jekk le, kif tixtieq li ismek jidher? \_\_\_\_\_

***Imla' BISS JEKK TIXTIEQ li t-tifel/tifla tiegħek tiehu sehem f' dan il-proġett***

Jien \_\_\_\_\_ (isem il-  
 ġenitur jew min jieħu ħsieb it-tifel/tifla) **nixtieq** li t-tifel/tifla tiegħi  
 \_\_\_\_\_ (isem tat-tifel/tifla) li  
 qiegħed/qegħda fil-klassi \_\_\_\_\_ tkun osservat/a u jkun/tkun  
 intervistat/a għal dan il-proġett ta' ricerka.

Tixtieq li t-tifel/tifla tiegħek jidher ismu/isimha? Iva \_\_\_\_\_ Le \_\_\_\_\_

X'isem tixtieq li t-tifel/tifla tiegħek tidher bih fir-rapport finali ta' dan il-  
 proġett: \_\_\_\_\_

Firma: \_\_\_\_\_ Data: \_\_\_\_\_

Nru tat-telefon: \_\_\_\_\_

Indirizz tal-email: \_\_\_\_\_

Jekk jogħġbokom ibagħtu din il-formola lura l-iskola sal: \_\_\_\_\_

Grazzi,

Jane



## Appendix 16

### Main study - Consent form for head teacher and teachers (English version)

**Please see leaflet for details of the research. If you have any questions, please ask me and I will be happy to answer.**

I am Jane Spiteri, a Ph.D. student at the Moray House School of Education at the University of Edinburgh, Scotland. I am researching the perceptions of environmental sustainability of young children (aged 3 - 7), their parents/caregivers, head teachers and teachers. I would be most grateful if you are willing to be involved in this study and can confirm this by reading the information below and after you have understood it, please sign below.

1. I have been given, and have understood, an explanation of this research project and I have had the opportunity to ask questions and have them answered to my satisfaction, before being interviewed.
2. I understand that I may withdraw myself or my child (or information given by me or by my child) from this study at any time and that my data will be immediately destroyed.
3. I understand that any information I provide will be kept confidential to the researcher, and her supervisors and the published results will not attribute any opinions to me by name.
4. I am willing to have my opinions published under my name or under a pseudonym, according to my instructions to the researcher.
5. I understand the information I have provided will be used only for this research project, which is part of a Ph.D. and to inform academic articles and conference papers related to it. Any further use will require my written consent.
6. I am willing to take part and be interviewed in this research project.
7. I understand that the interview is being digitally recorded/audio taped.

Please complete and sign this form where appropriate:

Do you wish to participate? Yes \_\_\_\_\_ No \_\_\_\_\_

If you answered yes to the above question, how do you wish to be interviewed?

In person \_\_\_\_\_ By phone \_\_\_\_\_

Do you wish to receive results of this research? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you wish to remain anonymous? Yes \_\_\_\_\_ No \_\_\_\_\_

If you do not wish to remain anonymous write down how you wish your name appears  
in the study \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name and surname: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Please return this form by \_\_\_\_\_

Thanks,

Jane Spiteri

### Formula ghas-sehem tal-kap tal-iskola u l-ghalliema (Maltese version)

**Jekk jogħġbokom irreferu għall-ittra ta' nformazzjoni dwar dan il-proġett u jekk għandkom xi mistoqsijiet, tiddejqux tistaqsuni.**

Jien Jane Spiteri, studenta tal-Ph.D. f' Moray House School of Education fl-Universita' ta' Edinburgh, fl-Iskozja. Il-proġett ta' riċerka tiegħi għadu l-għan li jinvestiga il-ħsibijiet tat-tfal żgħar (bejn 3 u 7 snin) u tal-adulti (genituri, kapijiet tal-iskola, u għalliema) dwar is-sostenibiltà ambjentali. Napprezza l-partecipazzjoni tagħkom u ta' wliedhom u nitlobkom taqraw hawn taht.

1. Jien ingħatajt spjegazzjoni dwar dan il-proġett u fhimt x'ser jiġri waqt dan il-proġett. Ingħatajt ukoll l-opportunità li nistaqsi xi mistoqsijiet u dawn ġew imwiegħba sewwa lili qabel ma bdiet l-intervista.
2. Jiena u t-tifel/tifla tiegħi nafu li nistgħu nirrifjuta milli nieħdu sehem f'dan il-proġett meta nixtiequ aħna u kull informazzjoni miġbura minn għandna tiġi imħassra mil-ewwel.
3. Jiena naf li kull informazzjoni dwari jew dwar it-tifel/tifla tiegħi ser tinzamm b'mod kunfidenzjali mil-istudenta u ser tintuża biss mal-għalliema tagħha u kull informazzjoni dwar dan il-proġett qatt m'hi ser tirreferi għalija jew għat-tifel/tifla tiegħi direttament.
4. Jien naċċetta li l-opinjonijiet tiegħi jiġu ppublikati jew f'ismi jew f'isem fittizju, skond ix-xewqa tiegħi.
5. L-informazzjoni li jien għaddejt lill-istudenta ser tintuża biss għat-teżi tal-Ph.D. jew f'xi artikli relatati mal-Ph.D. Kull użu ieħor jeħtieġ il-permess tiegħi bil-miktub.
6. Jien nixtieq li nieħu sehem fl-intervista f'dan il-proġett.
7. Jiena naf li l-intervisti ser jiġu rrekordjati.

Jekk jogħġbok imla' hawn taht:

Tixtieq tiegħi sehem? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk ir-risposta tiegħi kienet iva, kif tixtieq tkun intervistat/a?

Wiċċ ‘imb wiċċ \_\_\_\_\_ Bit-telefon \_\_\_\_\_

Tixtieq tirċievi r-riżultati ta’ dan il- proġett? Iva \_\_\_\_\_ Le \_\_\_\_\_

Tixtieq tibqa’ anonimu/a? Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk le, x’isem tixtieq li jkollok: \_\_\_\_\_

Firma: \_\_\_\_\_ Data: \_\_\_\_\_

Isem u kunjom: \_\_\_\_\_

Telefon: \_\_\_\_\_

Email: \_\_\_\_\_

Jekk jogħġbokom ibagħtu din il-formola lura l-iskola sal: \_\_\_\_\_

Grazzi,

Jane

**Appendix 17****Main study - Information letter for children (English version)**

Hello,

My name is Jane.



I am a research student at the Moray House School of Education at the University of Edinburgh, in Scotland.

I want to talk to you about your ideas about environmental sustainability.

I am also going to talk to your parents, to your head of school and to your teachers about it too. If you do not know what that means, that's OK because we can talk about it. If you do not want to talk about it, that's OK too and it's OK to say no.

I will show you everything I do and I will talk to your family about it all too.

I want to write down some of your ideas in a book for other people to read and think about. If you do not want these people to know who you are, you will need to choose a pretend name.

See you soon,

Jane

**Informazzjoni tat-tfal (Maltese version)**

Hello,

Jiena Jane.



Jien qed nistudja f' Moray House School of Education, fl –Universita' ta' Edinburgh, fl-Iskozja.

Jien nixtieq inkellimkom fuq l-idejat taghkom dwar is-sostenibilita' tal-ambjent. Jien se nkellek ukoll lill-genituri taghkom, lill-ghalliema u lill-kap tal-iskola fuq dan. Jekk intom ma tafux dan il-kliem xi jfisser ma jimpurtax ghax nista nispjegalkom. Jekk ma tkunux tixtiequ titkellmu mieghi ghiduli u ma jkun gara xejn.

Jien ser nurikom dak kollu li ghandkom taghmlu. Jien nixtieq nikteb ktib  
dwar l-idejat taghkom u b'hekk xi nies ikunu jistghu jaqraw x' tahsbu.  
Jekk intom ma tkunux tridu dawn in-nies jafu min intom, tridu taghzlu  
isem iehor.

Narakom,

Jane



## Appendix 18

### Main study - Child's consent form (English version)

My name is\_\_\_\_\_

My birthday is\_\_\_\_\_

My mother/father/caregiver's name is \_\_\_\_\_

My phone number or contact details are

---

Would you like to take part?

Yes \_\_\_\_\_

No \_\_\_\_\_

Would you let me tape our conversations?

Yes \_\_\_\_\_

No \_\_\_\_\_

Will you make some drawings for me?

Yes \_\_\_\_\_

No \_\_\_\_\_

If I change my mind about what we're doing, you will respect my decision.  
I can ask lots of questions if I want to.

I want my research name to be \_\_\_\_\_

Thank you!

Jane

**Formola tal-kunsens ghat-tfal (Maltese version)**

Jien jisimni \_\_\_\_\_

Jien twelidt f' \_\_\_\_\_

Omni/Missieri/Min jiehu hsiebi jismu/ha \_\_\_\_\_

In-numru tat-telefon huwa:

---

Tixtieq tiehu sehem?

Iva \_\_\_\_\_ Le \_\_\_\_\_

Trid li dak li tghid jigi rrekordjat?

Iva \_\_\_\_\_ Le \_\_\_\_\_

Tixtieq tpenzi tpengili xi haga?

Iva \_\_\_\_\_ Le \_\_\_\_\_

Jekk inbiddel fehmti dwar is-sehem tieghi, ghandi dritt nieqaf. Ghandi dritt ukoll nistaqsi hafna mistoqsijiet.

Jien nixtieq li ismi jidher bhala \_\_\_\_\_

Grazzi!

Jane

## Appendix 19

### Main study – Children's conversational interviews

**Child's Name:** \_\_\_\_\_

**Date of Interview:** \_\_\_\_\_

**Class/Year group:** \_\_\_\_\_

**Location of Interview:** \_\_\_\_\_

Thank you for coming here today! Do you remember that I have been coming to your class for quite a while now? Some time ago I talked to you about me writing a book and I need children to help me to do so. I would like to talk to you to help me write this book but first I would like to know if you want to talk to me. Is that OK with you?

I have these audio and digital recorders. You can try them out if you like to see how they work. Would you like me to record what you say to me using these recorders? You can stop the recorders any time you like. Now may I record our conversation today?

#### Personal questions

1. What is your name?
2. How old are you?
3. What is your date of birth?

#### Photograph interpretation

I will show the children seven photographs of the local environment and ask the following questions:

4. Can you tell me about this picture? What else can you see in the picture?
5. What is happening in this picture?
6. Where does this happen?
7. How do you know about this? Who told you about this? Where did you hear about it?
8. Do you talk about this at home, at school, or somewhere else?
9. What can you do to help here? Are there things you could do to change this?
10. Who should take care of this?
11. What happens if we use all of this?
12. Anything else you would like to tell me?
13. What does the environment mean to you?
14. Are there things you and your family do about this?

#### Drawing activity

After the photograph interpretations:

15. Would you like to draw something about this for me? Would you like to draw something about the environment for me, please?

**Children's drawing interpretation interview**

The children will be asked to tell stories to support their drawings to help me understand the thoughts and meanings behind the drawings.

Let's talk about your drawing.

1. Please describe your drawing. What did you draw?
2. What do you think ... means? Anything else?
3. How do you feel about it? Why?

Integral to the interviews will be the following:

- That's interesting. Why do you say that?
- Is there anything else you'd like to tell me?

Well, it looks like our time is up. I really appreciate your participation in this project. I will return your drawing soon and I hope to have a transcript available in the next few weeks. If you are interested, I would like for you to review it for accuracy and clarity.

Do you have any questions for me? Thanks for agreeing to be interviewed. Wrap up conversations as needed.

## Appendix 20

### Main study – Interview guide for head teacher

**Participant's Name:** \_\_\_\_\_

**Date of Interview:** \_\_\_\_\_

**Phone number:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Location of Interview:** \_\_\_\_\_

Thank you for your participation. As indicated in the information sheet I handed to you, the purpose of this research study is to gain a better understanding of young children's perceptions of environmental sustainability and the perceptions of environmental sustainability of their parents, head teacher and teachers. You can refuse to answer any question, and can terminate the interview at any time. You will be given a copy of the transcription of this interview to comment on and you can ask to edit or delete your statements if you need to.

I have already conducted interviews with the children and now I would like to have a conversation with you about your role and involvement with environmental sustainability, the support for environmental sustainability in your school, your perceptions of the children's interest in this issue, and any future plans regarding environmental sustainability initiatives within your school. Does this plan sound OK to you? May I record our conversation?

#### Demography

Let's start with you telling me about yourself.

1. Can you describe your role in the school?
2. On the whole, how do you describe the school?

#### Personal attitudes towards the environment

I would like to ask you a few questions about the environment.

3. What does "the environment" mean to you?
4. What are the environmental issues you are mostly interested in? *Tell me more about this.*
5. A) What actions do you take within your school to limit the impact of these environmental issues? (*e.g., reducing your energy consumption, recycling, donating money and/or time to environmental causes, etc.*)  
B) What influences your decision to do so?

#### Personal attitudes towards environmental sustainability

I would like to move on to ask you about environmental sustainability.

6. What does "environmental sustainability" mean to you?
7. How did you learn about these environmental sustainability issues?
8. Do you think that your own attitudes and behaviours related to environmental sustainability can affect the school culture, if at all? *Tell me more about this.*

#### The school and environmental sustainability

Let's talk about the school and environmental sustainability.

9. Tell me about the support for environmental sustainability at this school. *What is driving these efforts? How would you describe the school's level of commitment to environmental sustainability?*
10. In your opinion, what characteristics make this school conducive to developing a culture of environmental sustainability? *What are the benefits of this?*
11. Do you think the school's environmental sustainability initiatives are affecting children's attitudes and behaviours? If so, in what ways?
12. What types of programmes has this school had in environmental education? *Can you tell me more about this?*
13. Are there any written curriculum descriptions or school policies related to environmental sustainability?
14. How do you see the school moving forward in terms of environmental sustainability efforts?
15. Is there any other relevant information that you would like to share with me?  
Is there anything you would like to ask me?

Well, it looks like our time is up. I really appreciate your participation in this project. I hope to have a transcript available in the next few weeks. If you are interested, I would like for you to review it for accuracy and clarity. I do want to reassure you that the interview will not connect your name to the reporting. Do you have any questions for me?

Thanks for agreeing to be interviewed.

Wrap up conversations as needed.

## Appendix 21

### Main study – Interview guide for teachers

**Participant's Name:** \_\_\_\_\_

**Date of Interview:** \_\_\_\_\_

**Phone number:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Location of Interview:** \_\_\_\_\_

Thank you for your participation. As indicated in the information sheet I handed to you, the purpose of this research study is to gain a better understanding of the perceptions of environmental sustainability of young children, their parents, head teacher, and teachers. You can refuse to answer any question, and can terminate the interview at any time. You will be given a copy of the transcription of this interview to comment on and you can ask to edit or delete your statements if you need to.

I have already conducted interviews with the children and now I would like to have a conversation with you about your role and involvement with environmental sustainability, the support for environmental sustainability in your school, your perceptions of the children's interest in the issue, and any future plans regarding environmental sustainability initiatives within your school. Does this plan sound OK to you? May I record our conversation?

### Demography

Let's start with you telling me about yourself.

1. Can you describe your role in the school? *Which age group do you teach? How many years have you served in this role?*
2. What qualifications do you have?

### Personal attitudes towards the environment

I would like to ask you a few questions about the environment.

3. What does "the environment" mean to you?
4. What are the environmental issues you are mostly interested in? *Tell me more about this.*
5. A) What action could you take, personally within your school, to limit the impact of these environmental issues? *(e.g., reducing your energy consumption, recycling, donating money and/or time to environmental causes, etc.)*  
B) What influences your decision to do so?

### Personal attitudes towards environmental sustainability

I would like to move on to ask you about environmental sustainability.

6. What does "environmental sustainability" mean to you?
7. How did you learn about these environmental sustainability issues?

8. Do you think that your own attitudes and behaviours related to environmental sustainability can affect the school culture, if at all? Tell me more about this.

### **Children and environmental sustainability**

Now let's move on to talk about the children and environmental sustainability.

9. In your opinion, what are the benefits for young children of having a good understanding of environmental sustainability?
10. What do you think are some of the major influences on the children's perceptions of environmental sustainability?
11. How do the children's understanding of environmental sustainability that they have learnt about from home influence you in the classroom?
12. Do you address any of these issues we've discussed so far in your classroom? Can you give me some examples? What influences this decision of yours?
13. What types of programmes has this class had in environmental education this year? Can you tell me more about this?
14. Are there any written curriculum descriptions or school policies related to environmental sustainability?
15. Is there any other relevant information that you would like to share with me? Is there anything you would like to ask me?

Well, it looks like our time is up. I really appreciate your participation in this project. I hope to have a transcript available in the next few weeks. If you are interested, I would like for you to review it for accuracy and clarity. I do want to reassure you that the interview will not connect your name to the reporting. Do you have any questions for me?

Thanks for agreeing to be interviewed.

Wrap up conversations as needed.



## Appendix 22

### Main study – Interview guide for parents

**Participant's Name:** \_\_\_\_\_

**Date of Interview:** \_\_\_\_\_

**Phone number:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Location of Interview:** \_\_\_\_\_

Thank you for your participation. As indicated in the information sheet I handed to you, the purpose of this research study is to gain a better understanding of the perceptions of environmental sustainability of young children, their parents, head teacher, and teachers. You can refuse to answer any question, and can terminate the interview at any time. You will be given a copy of the transcription of this interview to comment on and you can ask to edit or delete your statements if you need to.

I have already conducted interviews with the children and now I would like to have a conversation with you about your role and involvement with environmental sustainability, the support for it, your perceptions of the children's interest in environmental sustainability, and any future plans you might have regarding environmental sustainability initiatives. Does this plan sound OK to you? May I record our conversation?

### Demography

Let's start with you telling me about yourself and about your child.

1. What is your name?
2. What is your child's name? How old is your child?
3. Can you tell me something about yourself? *For example, what do you do for a living or any hobbies you might have?*

### Personal attitudes towards the environment

I would like to ask you a few questions about the environment.

4. What does "the environment" mean to you?
5. What are the environmental issues you are mostly interested in? *Tell me more about this.*
- 6.A) What action could you take as a family to limit the impact of these environmental issues? (*e.g., reducing your energy consumption, recycling, donating money and/or time to environmental causes, etc.*)
- B) What influences your decision to do so?

### Personal attitudes towards environmental sustainability

I would like to move on to ask you about environmental sustainability.

7. What does "environmental sustainability" mean to you?
8. How did you learn about these environmental sustainability issues?
9. Do you think that your own attitudes and behaviours related to environmental sustainability can affect your family, if at all? *Tell me more about this.*

### **Children and environmental sustainability**

Let's now talk about your child and environmental sustainability.

10. From your perspective, how would you describe your child's level of concern about environmental sustainability?
11. In your opinion, what are the benefits for your child of having a good understanding of environmental sustainability?
12. What do you think are some of the major influences on your child's perceptions of environmental sustainability?
13. How does your child's understanding of environmental sustainability that s/he has learnt about from school influence you at home?
14. Do you address any of these issues we've discussed so far with your child? Can you give me some examples? What influences this decision of yours?
15. Is there any other relevant information that you would like to share with me? Is there anything you would like to ask me?

Well, it looks like our time is up. I really appreciate your participation in this project. I hope to have a transcript available in the next few weeks. If you are interested, I would like for you to review it for accuracy and clarity. I do want to reassure you that the interview will not connect your name to the reporting. Do you have any questions for me?

Thanks for agreeing to be interviewed.

Wrap up conversations as needed

**Appendix 23****Transcript letter to participants (English version)**

Enclosed is a transcript of your interview with me earlier this year. Now is your opportunity to review the text and get back to me as soon as possible with any changes you would like to make.

Please feel free to contact me about this transcript or any questions or comments about the research that you may have. Once the transcript has been returned, I will begin the process of formally analysing the data. I would like to thank you for your contribution, for your patience and for helping me to learn more about early childhood education for sustainability.

I appreciated the time and thought you put in to answering my questions, especially because you were so busy with your own work and lives.

Yours sincerely,

Jane Spiteri

***Please sign***

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

### **Kitba tal-intervista' mal-partecipanti (Maltese version)**

Qed nipprezentalkom skrittura tal-intervista' li kellek mieghi aktar kmieni din is-sena. Issa ghandek l-opportunita li tirrevedi dak li hemm miktub u tirritornah lura mill-aktar fis possibli.

Tiddejaq xejn tikkuntatjani biex tistaqsini xi mistoqsijiet li jista' jkollok dwar din l-iskrittura. Meta tirritorna l-iskrittura, jien nibda' l-analizi tad-data. Nixtieq nirringrazzak bil-quddiem tal-kontribuzzjoni tieghek fir-ricerka tieghi, fl-edukazzjoni tat-tfal zghar dwar is-sostenibilita', u li sib tic-cans li tigi ntervistat/a.

Dejjem tieghek,  
Jane Spiteri

***Jekk Joghbok iffirma hawn taht***

Isem \_\_\_\_\_

Firma \_\_\_\_\_

Data \_\_\_\_\_

**Appendix 24****Ġanni, the puppet**

## Appendix 25

### Main study - Photographs used during photograph interpretation session



Source: My own drawing.



Source: <http://www.maltastar.com/dart/20121105-conergy-ceo-has-words-of-praise-for-malta-and-electrofix-energy-ltd>



Source: <http://www.timesofmalta.com/articles/view/20120913/letters/Let-s-be-serious-about-enforcing-traffic-laws.436727>





Source: My own



Source: My own





Source: My own.



Source: [http://www.noaa.gov/features/economic\\_0309/angling.html](http://www.noaa.gov/features/economic_0309/angling.html)

**Appendix 26****Data sheet****Drawing interpretation transcript****Sarah's drawing****Sarah's story about her drawing**

Puppet: What did you draw here?

Sarah: A tree.

Puppet: Why?

Sarah: No answer

Puppet: Is this the environment?

Sarah: Yes!

Puppet: Why?

Sarah: Because they (trees) give us food.

Puppet: You mean fruits?

Sarah: Yes. They give us food.

## Appendix 27

### Case study data analysis worksheet – Children’s data

	<b>Sarah</b>	<b>Dalton</b>	<b>Jazlyn</b>	<b>Denzil</b>	<b>Ayida</b>	<b>Thea</b>	<b>Amie</b>	<b>Ylenia</b>	<b>John</b>	<b>Jaylee</b>	<b>Liam</b>	<b>Francesco</b>
<b>Themes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>	<b>Codes</b>
<b>Age in years and months</b>	3 years 4 months	3 years 6 months	3 years 8 months	4 years 5 months	4 years 7 months	4 years 9 months	5 years 6 months	6 years 5 months	6 years 5 months	6 years 7 months	7 years 2 months	7 years 6 months
<b>Gender</b>	F	M	F	M	F	F	F	F	M	F	M	M
<b>Members of EkoSkola</b>										EkoSkola team member	EkoSkola team member	Nature Trust (Malta) team member
<b>Understanding of environment</b>	Tree as a source of food and build houses	Trees, flowers, birds	Take pictures with mum and dad	Nature that includes humans The place where we get food	Flowers, trees and herself	Sun, trees, animals and worms	Flowers, trees, birds, sun and grass	Trees, plants, sea and people Environment provides food	Nature and includes himself Nature keeps us healthy	The whole world	Trees, bushes, animals and people	Trees, flowers, butterflies Ideal environment vs current state of environment
<b>Understanding of environmental sustainability</b>	People taking caring for nature		Taking care of trees	Cleaning the planet	Taking care of trees and flowers with her mother	Taking care of trees and not kill birds	Caring for nature and keeping the Earth clean, cleaner transport, waste less and recycle more	Keeping the planet clean and use resources wisely Do not waste resources	People caring for the planet and nature	Caring for the natural environment and keeping it clean	Keeping the planet clean and recycling	Using natural resources wisely
<b>Environmental concerns</b>	Traffic in Malta Traffic accidents	Traffic in Malta Exhaust		Exhaust Traffic accidents in Malta Dust from limestone quarries in Malta and worldwide	Traffic in Malta Car still necessary Power stations in Malta	Traffic in Malta	Traffic in Malta Conservation of water, energy, paper, trees and fish Exhaust	Traffic in Malta Vehicle exhaust Unlimited use of natural and non-renewable resources Global warming	Traffic Destruction of nature Air pollution, car exhaust and burning of fossil fuels	Traffic in Malta Cars still necessary for her own and her family’s use	Power stations in Malta Smells of power station that make people sick Air pollution Traffic in Malta	Power station in Malta Air pollution in Malta Replacement of natural resources Cutting trees

											Overfishing and extinction of fish	Extinction of species Limited use of non-renewable energy sources Whale-hunting War
<b>Proximity of issues and identity with place</b>	Local	Local		Connection between local and global	Local	Local	Local and global	Local and global Connection between burning of fossil fuels and global warming North Pole	Local and global	Local and global	Local and global	Local and global
<b>Actions</b>	Recycling	Recycling	Recycling Encouraged mother to recycle and save water	Walking Recycling Using local produce Save water and energy	Recycling	Recycling Saving energy and water Collect rain water Cycling	Cycling and walking Recycling Saving paper to save trees Sustainable fishing	Recycling Redistribute Turn lights off Walking Cycling	Recycling Walking Using public transport Renewable energy sources at home Limit the use of renewable and non-renewable energy sources Solar panels Responsible fishing	Recycling	Recycling Responsible fishing	Reuse and recycling Composting Renewable energy sources Solar energy More buses, walk or bike
<b>Barriers to action</b>	Parental beliefs and gender discrimination		Home environment and lack of parental interest		Home environment and lack of parental interest	Mother says recycling is rubbish		Mother's behaviour - driving			Lack of knowledge - solar panels	

	Lack of interest from teacher		Lack of interest from teacher									
<b>Attribution of responsibility</b>			Adults Children	Parents	Adults and children Guidance from adults		People	People	People and himself	Children and adults Including herself	Adults and children	The Government, adults, and children
<b>Sources of information</b>	Television Personal experience	Television Personal experience		Parents Head teacher Teacher Television	Television Grandparents	Parents Grandparents Head teacher Teacher Personal experience	Parents The school Teacher Television	Science lessons The school Books Parents	Parents Television Self-reflection			Television and books  The parents The grandparents Nature Trust (Malta)
<b>Media</b>	Diego and Dora			Diego and Dora		Television	Diego and Dora		Diego and Dora Television		Television	<i>Lord of the Rings</i> <i>Ice Age</i>
<b>Limited language and drawing skills</b>		Car exhaust burnt the skin		Use of word “dirty” instead of “polluted” Solar panels as swimming pools but knew what they were used for – electricity generation Black smoke	Cars harmful because of accidents Power stations as factories of cancer		Cars and exhaust make the air dirty Dirty air makes us sick	Smoke from exhaust Exhaust makes the air dirty	Used the term “gas” for “fuel” Exhaust makes air dirty		Use of term “dirty” instead of “polluted” Use of term “smoke” to mean “exhaust” Black smoke Used of swear words to express his disgust Concern with overfishing and extinction of species yet wanted to kill all sharks	Humans as “orcs” Concern with overfishing yet wanted to kill all sharks
<b>Pride in action</b>	Proud of recycling			Very proud of his actions Wanted school to win the recycling competition		Showed pride in taking environmental actions	Very excited about school’s recycling competition		Pride in being able and knowledgeable how to		Pride in the school’s recycling competition Included the business	

									care for nature Pride in the school's recycling competition Pride in personal interest for the environmen t		community in the school's recycling competition Proud of his home country	
--	--	--	--	--	--	--	--	--	---	--	--	--

## Appendix 28

## Case study data analysis worksheet – Parents’ data

	Natasha	Jeanette	Josephine	Georgia	Jacqueline	Catherine	Alison	Robert	Marija	Julie
Themes	Codes	Codes	Codes	Codes	Codes	Codes	Codes	Codes	Codes	Codes
Age in years	32	30	45	29	31	32	35	35	39	34
Gender	F	F	F	F	F	F	F	M	F	F
Employment status	Part-time	Part-time	Housewife	Part-time student	Part-time		Full-time	Full-time	Housewife	Full-time
Qualifications								Undergraduate degree		
Understanding of environment	Nature, human-made and noise environments	Nature	Nature	Nature that includes humans	Nature and human-made environment	Balance between nature and human-made environment	Nature and human-made environment	Nature and human-made environment	Nature	Nature and human-made environment
Understanding of environmental sustainability	Protection the natural environment	Keeping the Earth clean	Caring for nature	Caring for nature Limiting the use of natural resources to preserve them for future generations	No definition	Not interested	Preservation of natural resources for the well-being of current and future generations	People considering the environment as a second priority	People protecting nature for future generations	Care for nature Preservation of natural resources for future generations
Concerns	Noise pollution	Over-development in Malta War in Syria Well-being of humanity	No pro-environmental actions Environmental sustainability not important	Traffic in Malta Limestone quarry dust	Air pollution in Malta Two power stations in Malta		Production of waste and its recycling process Global warming	Humanitarian issues Climate change	Pesticides in Maltese agriculture and the harmful effects on people	Lack of pro-environmental action
Proximity of concerns and identity with place	Local	Local and global		Local	Local		Local and global	Local and global	Local	Local and global
Actions	Reducing waste and recycling Renewable energy sources Water reservoir	Recycling at home and at work	None but aware of Jazlyn's	Recycle at home and school Save water and energy		Recycling is rubbish Conserve water	Minimise waste Recycle Save paper	Recycling Save water	Recycling Use of local produce	Buy local produce Walk, bike or catch the bus Insulation at home Vegetarian meals Energy-saving equipment at home

										Recycling Teaching Francesco about the environment Future plans for renewable energy sources
<b>Attribution of responsibility</b>	People		People		Government Not her responsibility		Herself as a parent	People	People Government	
<b>Sources of information</b>	Her husband Friends Internet The school Her children				Political party	Local grocer's shop	Her own education Her employment Books Internet			
<b>Major influences</b>	Her husband The Government's scheme Sarah's age Sarah's gender	Dalton's age		Financial and environmental reasons	Political party		Employment Amie's age	Ylenia's age		
<b>Barriers to action</b>	Lack of time and finances									
<b>Education as a key to environmental sustainability</b>	Teaching about environmental sustainability as very positive	Believed in teaching children		Importance of teaching young children about environmental issues	Not good to teach very young children about environmental sustainability Teach older children	Education to raise awareness	Emphasise the importance of teaching young children PEB			
<b>God and environmental sustainability</b>	God created the natural environment Religion was used to compare absolute truths							God created nature	God created nature and people should not ruin it Sin	
<b>Pride in action</b>		Pride in participating in the school's					Proud of her activities			



		recycling competition								
--	--	--------------------------	--	--	--	--	--	--	--	--

## Appendix 29

## Case study data analysis worksheet – Head teacher's and teachers' data

	Mr. D	Ms. A	Ms. P	Ms. L	Ms. N	Ms. M
Themes	Codes	Codes	Codes	Codes	Codes	Codes
Gender	M	F	F	F	F	F
Position in school	Head teacher	Teacher in Kindergarten 1	Teacher in kindergarten 2	Teacher in Year 1	Teacher in Year 2	Teacher in Year 2
Years of service	9 years 6 months	11 years	2 years	10 years	20 years	19 years
Qualifications	Masters degree	Tertiary certificate in pre-school education	BTEC National Diploma in Children's Care Learning and Development	B.Educ. (Hons)	B.Educ. (Hons)	B.Educ. (Hons)
Understanding of environment	Nature and human-made	Nature	Nature and human-made	Nature and human-made	Nature that does not include humans	Nature
Understanding of environmental sustainability	Preservation of natural environment for future generations	Protecting natural resources	People taking care of the environment	Conservation of natural resources as a means to achieve environmental sustainability	Protection of nature Conservation of natural resources	Conservation of natural resources
Concerns	Air pollution Lack of natural rural areas in Malta	Rubbish in Malta Recycling Aerosol sprays Air pollution Waste in the oceans	Burning of fossil fuels Climate change Renewable energy sources	Over-development in Malta Air pollution in Malta Hunting in Malta Conservation of natural resources	Depletion of natural resources	Power station in Malta Air pollution Health issues and pollution
Proximity of concerns and identity with place	Local and global	Local and global	Local and global	Local	Local and global	Local
Action	EkoSkola programme Participation in local environmental campaigns Animal welfare awareness Walking school bus Recycling school competition Recycling and composting Saving paper, water and energy	Recycling Using less sprays Never used recycling bins in class Never turned off lights	Switching off lights Save water Recycling Clothe towels	Recycling at school	Recycling Children make own doodle board Save water and energy	Renewable energy sources at home. Recycling Energy-saving measures in classroom Save water Walking

	Involvement of the local business community					
<b>Attribution of responsibility</b>	Adults and children	Adults	Adults			Adults and children
<b>Influences on children's perceptions</b>	Parents contributed to the school's pro-environmental actions Very welcoming school environment Business community participate in recycling Positive impact of EkoSkola programme Positive outcomes of outdoor learning	Internet and books	Television Radio EkoSkola programme	The school		
<b>Major influences</b>	Maltese Health Department certificate Positive impact of EkoSkola programme Positive outcomes of outdoor learning	Children's age – too young to understand EkoSkola programme School's environmental activities	EkoSkola programme Television The children's family	Children's age – too young to understand EkoSkola programme School's environmental activities	EkoSkola programme School's environmental activities	EkoSkola programme
<b>Pedagogy</b>	Reduce the use of paper and energy Reduce school's carbon footprint	Never discussed environmental issues with children Followed school's environmental initiatives	Recycling Emphasised importance of teaching young children about the environment	None related to the environment or environmental sustainability	Education as key to help people conserve nature Emphasis on reusing before recycling	Recycling Teaching children how to preserve natural resources Education is very important for sustainability
<b>Barriers to action</b>	Time and finances	Lack of training	Time, syllabus and curriculum	Time, syllabus and curriculum Busy lifestyle	Time constraints Lack of training	Time, syllabus and curriculum
<b>Pride in action</b>	Proud of his interests in his environment		Proud of her interest in the environment			